The Builder.

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The Question of Residences, Paris.—Theatres.

WHILE London is discussing what measures shall be adopted preparatory to any further destruction of a large number of residences, Paris is quarrelling about the evil or good results which have followed wholesale clearances of a similar kind: the dearness of places of residence; the prevalence of speculation in land, which is supposed to assist in producing the evil; and the financial and other administration of the municipality, continuing to form the subjects of much discussion. Since our detailed notice of the intended streets and other improvements was published, an important pamphlet has appeared, entitled "La Liberté et Les Affaires: La Cherté des Loyers et les Travaux de Paris," from the pen of Mr. A. Guéroult, *Rédacteur en Chef* of the *Opinion Nationale*, wherein the city is plainly accused of the authorship of the evil, the argument is advanced that the municipality should charge itself with the work of reconstruction, and the wisdom of destroying houses of a costly character, lately built, for the sake of uniformity or the *alignement* is pointedly questioned. We have not at present opportunity to enter into all the bearings of the controversy; but we may add, on the one side, that costly operations such as the author of the pamphlet refers to, are not always favourable to the desired effect of street architecture in Paris, more than they are considered consistent with sound economy; and question on the other, if the *liberty of affairs*, as the true policy for the municipality, would be promoted by the course which Mr. Guéroult shadows forth. Indeed, we believe this contrary view has been maintained in the *Journal des Débats*. The pamphlet, however, is an important one; and we hear that the Emperor has written thanking the writer for having produced it.

Last week the Corps Législatif were occupied several hours on the same question, which, it appears, has its counterpart in other populous cities in France; as it has in London, or so nearly at present or for the future, that everything contributed to the solution of it should be regarded here with the closest attention. The report of the debate occupies twelve columns in the *Moniteur* of Wednesday, the 20th. The amendment proposed went to declare that the "towns of Paris and Lyons assisted with inquietude at the immoderate enterprises of municipal administrations unattended with check and control;" and that "the absence of elected municipal councils, and the forgetfulness of the elementary principle of public right which assures to the individual contributor the right of naming those who vote the impost and dispose of it," had never "been more sensibly regretted" than at the present time. Mr. E. Picard, who moved the amendment, which was signed also by Messrs. Jules Favre, A. Darimon, Hénon, and Emile Ollivier, was replied to by Mr. Devinck, author of a report on the financial situation of the city, presented to the municipal council on the occasion of the budget for 1861, and by Mr. Billault, one of the ministers. Although ultimately the reasons with which our readers are familiar led to the non-adoption of the amendment, many features of the discussion can be usefully thought over in Paris, as in those other capitals where a tendency to the same condition of over-population in proportion to houses, exists; for, exist it does, we apprehend, in capitals generally, though most of all in Paris.

The minister, in the course of the discussion, stated that a large number of new houses would have to be built; and announced as amongst the good results which had followed from opening new streets that the mortality had diminished ten per cent.

As we are writing of Paris, we may continue our observations on the discussion now going on there in respect of the best form and arrangement of theatres.

On the 16th, at the Conservatoire des Arts et Métiers, Mr. Trélat delivered the first of three lectures on the same subject. The lecture more especially related to the Greek theatre and drama. For this branch of the subject, it seems necessary to bring to the knowledge of the French architects the existence of the contribution by Professor Donaldson, on the ancient theatre, to the supplementary volume of Stuart's Athens, second edition, where, besides much other matter, there is a plan giving an ideal restoration, which will be found of value by those who have felt the difficulties left by Vitruvius and others. Mr. Falkener's paper of more recent date, on the Theatres of Crete, would also deserve the notice of Mr. Trélat: indeed, it is essential for the subject.

A *resumé* of some of the chief points in the question of the proposed new building, and a general review of the designs, was given by Mr. César Daly on the 14th ult., at the meeting of the *Presse Scientifique*, and will be found reported in the following number of the publication of that Society.* Mr. Daly, from the French point of view, instances the church, the opera-house, and the railway terminus, as the chief monuments of contemporary architecture; churches now required being buildings of a different character and scale to the churches of the Middle Ages. In the case of the Paris Opera-house the problem was novel and complex: the month's preparation was insufficient; and, if sketches would have served had the subject been an arch of triumph or a tomb, there could not, in the present case, be the saving of time expected in calling for sketches only; elaborate work of representation being identified with the necessary study.

The effect of the collective blunder was to strike with impotency the competition opened. The author, however, discovers many merits in the works, and puts forth some useful conclusions from his survey, regretting, however, with us, the absence of the written particulars. In the course of some remarks on stage arrangement, he instances a new theatre, not in France, where only twenty-five men are required for working machinery, to produce the same kind of effects as require 100 men on the stage in Paris; and concerning the position of the front of the stage relatively to the *salle*, he quotes some words addressed to him by Nourrit, the singer, the tendency of which is to show that, irrespective of other considerations, it is favourable to the efforts of the actor that he should feel himself, as it were, "enveloped by the audience, and touched by their sympathetic regards from all parts." Mr. Daly, we believe, has ready for publication a more minute account of the results of the competition, with illustrations of some of the principal designs. The French journals announce that the drawings of the new theatre, to be called after the Prince Impérial, are at present under consideration by the Conseil des Batiments Civils. The site named is between the Rue Réaumur and the Square St. Martin.

* "Presse Scientifique des Deux Mondes: Revue Universelle du Mouvement des Sciences pures et Appliquées," No. 4. Année, 1861. Tome Premier. Livraison du 16 Fevrier: Paris, au Bureaux de la Presse Scientifique. Londres: H. Baillière; Barthès et Lowell.

THE SARACENIC STYLE DISTINCT FROM THE BYZANTINE.*

THE occurrence of round arches, alternating with those of the pent-roof, or angular head, will readily call to mind the niches in the theatre of Taormina, in Sicily, which have a similar appearance and arrangement: they are also of brick, and of the same character, with a hood over the arch, or layer of bricks intervening between those of the archivolt and the superincumbent wall. Of this alternation of the round and angular-headed arch many instances occur, in Roman times, of a more ornamented character in the form of pediments over windows or niches, in stone, as at Nimes, of the time of Augustus; at Baalbek, in the smaller temple; at Diocletian's baths at Rome; and other buildings: it is also seen in the wall of Constantinople, and in the baptistery of Ravenna, built A.D. 451; and it has long been fashionable over the windows of modern European houses. And as it was employed at so early a period, we are not surprised to find it in a building evidently erected by the Coptic Christians of Egypt. The style of construction in the old portions of the *Jâma-t-Amr* is the same as that in the neighbouring convent, which still remains within the old Roman station at Babylon; and as its brick windows, added by the Christians in the upper part of the stone wall above its southern gateway, have the same character as those of the mosque; they at once proclaim the source whence the latter were derived, and the very usual and even necessary assistance obtained by the Arab conquerors from native builders.† One of its peculiarities consists in the hood placed over the arch, already alluded to; and, as it is found in several early Christian buildings of the time of the Arab invasion of Egypt, we know it to have been commonly adopted there even before this mosque was erected; and the same style of construction appears in the small pointed arches built by the Christians in the same century. It also occurs (somewhat stilted) over the windows of the Red Convent near Soohág, in Upper Egypt,—a building supposed to be of early Christian time, though completed much after its pretended date, the reign of Constantine. This hooded pointed arch continued in use a long time afterwards; and it not only appears in the south-west front of this mosque, which is probably of a rather later date than the above-mentioned portion at the south-eastern side, but is found in Arab buildings (as at Asouan), over stilted arches, of about 1070 A.D., and at other later periods.

The south-western front of this mosque is remarkable for another feature, which soon became so marked in Saracenic architecture,—the pointed arch. It here alternates with the round one in the lower, as that with the pent, or angular, head does with the round arch in the upper tier; and though the pointed arch had been occasionally used of very limited dimensions, as already stated, before the Arab conquest (A.D. 638), this was probably one of the earliest instances of its regular employment in the walls of any large building. It may have been introduced on some few occasions, as in Assyria and at the Pyramids of Napata, and in subordinate positions to cover passages, and spaces of limited span, at a much more remote period; but its first development was unquestionably due to the Arabs; and in little more than 200 years after their first conquests it became an established feature of Saracenic architecture.‡

In the earliest periods of their history the Arabs were satisfied with imitations or modifications of the buildings of each district where they settled; and this explains the diversity that exists in the character of those raised by them, and by the native architects they employed in different countries; while it accounts for the subsequent combination of various elements in their architecture when they became sufficiently advanced to form a new and independent style; for we must recollect that the Moslems, from the time they conquered Syria, Egypt, Western Africa, Persia, India, and other countries, about eighty years after the death of Mohammed, had added whole populations to their ranks; they had long ceased to be merely rude invaders from Arabia; and

* See p. 193, *ante*.

† It is in the convent over this gateway that the curious inscription on wood, of the time of Diocletian, occurs, over a doorway once leading into the church.

‡ I cannot subscribe to the opinion that the pointed arches of the mosque of El Aksah, at Jerusalem, are of the 69th year of the Hégira, A.D. 689; or that that building is in the condition in which it was when built by Abd-el-Mélek. The stalls and the columns, with their capitals, are probably of Christian time, but the arches of the church (I do not speak of the vaults) are neither of Christian nor of the earliest Moslem time.

their converts, long practised in the arts and architecture of their respective provinces, brought with them the knowledge possessed by the Byzantine Greeks, the Copts, the Persians, the Indians, and others who had joined their ranks. No wonder, then, that with such varied contributions to the common stock the new architecture was marked by the remodelled types of so many different styles. The Byzantine Greeks gave it many of its earliest ornamental devices and other features. The Copts, more in favour in Egypt than the Greeks, their religious and political rivals, were constantly employed in that country by the Moslems as builders. Persia, as history and the infallible evidence of style proclaim,* had the greatest influence on the character of its oldest buildings; and we know that architects from that country had long before been employed by Justinian at Constantinople. India, too, furnished numerous marked features; among which may be noticed the minaret, the *mehráb*, or niche of prayer, the bracket, and other peculiarities of its monuments; and many instances might be adduced of the spread of the prevailing characteristics of different styles throughout the most distant countries conquered by the Arabs. Some were less readily adopted in certain districts, owing to previous predilections, or to the nature of the climate: in one place covered buildings were a necessity: in another, they were not required; and thus, while previous habit suggested the adoption of the dome in Syria and some northern countries, the Egyptian Moslems did not admit it till a later time, and then only as an adventitious feature gradually welcomed by them, through the influence of the Kurd, Turkman, and Circassian Soltans,† who succeeded to the throne of Egypt after the dissolution of the Fatemite Caliphate, in 1171 A.D. For the oldest mosques in Cairo, of 879 and 1003, as we have already seen, have no dome, or other distinguishing feature of Byzantine architecture; and the small one in the court, covering the font for ablutions, is of later time. They consist, as I have before stated, of the hypæthral Court, surrounded by colonnades, with a minaret on one side, or at two or more of the corners; and the hypostylar portion, at the upper or prayer end, was covered by the same kind of flat roof as the corridors of the court.

Of the architecture of the Abbaside Caliphs we know little, though the distinguished leaders of that dynasty were great encouragers of architecture, as of all the sciences and arts; and the only building now remaining of that period in Egypt is the Mekeeas, or Nilometer, in the Isle of Roda, which, founded by the Caliph Mamoon, was rebuilt by El Motawukkel-al-Allah-Gáfer, the tenth prince of that dynasty, A.D. 862; and the peculiar character of its Cufic inscriptions proves it to be of that age. M. Coste thinks they are of 199 A.H. (814 A.D.), and of 233 A.H. (848 A.D.); but they are, at all events, not later than the time of El Motawukkel, or 862 A.D.‡ Its arches rest on engaged columns, in a manner which recals those of our Norman time; and the capitals have a simple character approaching to the Romanesque, without any abacus or import, but with a heavy unornamented base. In the summer of 1832, I obtained permission, from Mohammed Ali, to remove the upper steps of the staircase, which covered the end of the Cufic inscription, in the hope of finding the date; but though my search was fruitless, I have no doubt, from the simple style of the Cufic, that it is of the Caliph Motawukkel; and the fact of the pointed arch having been in general use at that period, is fully confirmed by the mosque of Ahmed-Ebn-Tooloon (afterwards enclosed within the walls of Cairo), which has that feature throughout, and was erected in 879 A.D.; as recorded by history and by the inscription still remaining there, which contains the date 265 of the Hégira.§ There is another mosque in Cairo, of great antiquity—the Azhár, founded by Góher-el-Káëd, the general of El Moëz, the first Fatemite Caliph of Egypt, A.D. 972; but of the original building, which was very small, no part remains except the niche, which stands in the middle of the great colonnade. The western part, with the minaret, is of E' Naser Mohammed, A.H. 736 (A.D. 1336); Káëdbay added to it about 1470 A.D.; and it was completed by Abd-E'Rahmán Kéhia, in 1762 A.D.; who at the same time enlarged the small but highly venerated mosque of El Hassanin. But another remarkable edifice of the Fatemite Caliphs, founded by the second successor of El Moëz, still remains in its original state; and this mosque of Soltan El Hákem-be-omr-Illah presents, throughout, the same kind of pointed arches, on solid piers with engaged columns, as that of Ebn-Tooloon; and like it is built of brick.* The span of the arches is 16 feet 6 inches; those of Ebn-Tooloon, 14 feet 6 inches; and they have both a slight spur, so well known in the round horse-shoe arch; which last form of arch, though little used at Cairo, occurs at the Toolooneëh, in a wall introduced at a somewhat later time between the mosque and its whimsical spiral minaret.

The pointed arch being the one in ordinary use at this period, it is found, as might be expected, in the palace of the well-known Eiyoobite Caliph Yoosef-Saláh-E'deen (Saladin), adjoining the modern Cadi's court at Cairo, springing from solid piers. It dates about 1180 A.D.: for though this was a portion of one of the Kasráyn, or "two palaces," erected by Goher, the founder of Cairo (A.D. 970), it was probably an addition of the Eiyoobite Caliph, who lived there at the time he added to Cairo its citadel, and replaced with stone the brick walls of its former circuit. The site of one of the two palaces is now occupied, in part, by the Cadi's court; and the spot where they stood is still recorded by the name Bayn El Kasrayn, ("between the two palaces") applied to the space which intervened between them. The same kind of arch continued to be used in the public buildings of Cairo, throughout the reigns of the Eiyoobite and the Memlook Soltans, to the conquest of the country by the Turks in 1517. But while this was so marked a characteristic in the mosques of Egypt, together with the hypæthral court, the dome did not become a prevailing feature there till after the accession of the Eiyoobite or Curd, the Bahárite or Turk, and other dynasties; and it was then made subservient to the style already established, being derived from a cognate branch which had developed itself in Syria and other countries. It was thus, too, that the minaret had been adopted by the Moslems from India; and though the bracket may have been introduced from the same country, there is sufficient evidence of its having been also copied, as by the Moors, from Roman buildings; and arches bracketed, or resting on projecting imposts, may be seen in a Roman ruin at Udine, near Tunis.

Indeed, the custom of using ancones, or consoles, is of very early date, and of Greek time; and columns as well as other members are supported upon them in many Roman buildings, as in Diocletian's palace at Spalato and elsewhere. They answer the purpose of our corbels, derived also from Roman architecture. At Diocletian's palace, too, the arches spring from single columns, without any intervening member between them and the capitals.

If the minaret came from India, it was speedily improved by the Arabs, and nowhere does it possess the same beauty of proportion and elegance of form as in the mosques of Cairo, particularly those built in the time of the Circassian Memlook kings, as of El Berkook, 1392—1399 A.D.; of El Kaëdbay (or Kaitbey), 1468—1496; and many of the preceding dynasty, as of Saleh Eyoob, 1249 A.D.; of Baybers, 1270 A.D.; of Kalaoon, 1285 A.D.; of Naser Mohammed, 1299 A.D.; of El Ashraf-Eenál, 1453; and of the Emeer Keeber. They offer a pleasing contrast to those of the neighbouring Syria; and at Damascus every one admires the minarets introduced there during the rule of the Egyptian Soltans.

The difference of type displayed by the minaret in several countries is, perhaps, more striking than that of any other member of an Arab edifice, and nothing can be more dissimilar than those of Cairo, and of India, and the tower-like Ghiralda at Seville, whose type is so common throughout the Barbary states, and which differs so widely from another minaret common at Tunis, as well as in Syria and some other countries.

I would gladly enter into the merits of these also, but I should extend my paper beyond its proper limits. If, however, I omit all mention of the extinguisher form of the Turkish minaret, or the grand mosques of Constantinople, imitated so decidedly from Sta. Sophia, I feel less regret as their architecture does not properly come under the head of Saracenic, and is foreign to my inquiry.

I have noticed the general use of the pointed arch in Egypt at the latter end of the year 800 and beginning of the following century. It is said to have been employed at the same periods in other countries of Islam; and in India an instance is stated to have been found of the time of Mahmood of Ghúzni, who reigned from 997 to 1030 A.D.

At Kairawán, in the modern regency of Tunis, the old capital of the Fowátem, or Fatemites, the founders of Musr-el-Káhirah, or Cairo, the pointed arch is thought to date at a very early period, and one which I was shown at Kairawán, in a building covering a well, is *reputed* to be coeval with the Sahába, or companions of the Prophet. I need scarcely say that this is more than improbable. We cannot believe it to be of the age of Mohámiah, in whose reign the city and the great mosque were founded by Ogbá (Okba), A.D. 670, according to Leo Africanus; and, though the simple corbelling of the dome, in the upper part of the building, gives it an early appearance, it does not seem to date as early as Ibraham Ebn-Agleb (Akleb), who established the new dynasty of the Aglebites, in Africa, A.D. 800, and who added so much to the city that he was considered its second founder. He was the same who built the suburb called Rasheed; and the port of Mahdéëh was founded by El Máhdee, the first of the Fatemite kings of Africa, about A.D. 910; and if I mention these two places, it is because future travellers in that part of the country may have opportunities of making inquiries there, which I was unable to do, being obliged to return to Tunis in time for the departure of her Majesty's ship *Beacon*, in which my lamented friend, Captain Graves, had kindly given me a passage from Malta. Unfortunately, the difficulty of examining any building at Kairawán and the neighbourhood has, till lately, been very great, owing to the prejudices of the Moslems, who look upon it as a holy city, and are everywhere in Barbary averse to European intrusion; and, when I went there in 1845, only two other Christian travellers had been permitted to lodge within its precincts. I was, however, enabled to make many more observations than I had expected, owing to my speaking Arabic, to my travelling in the Eastern dress, and to the opportunity I had of meeting and overcoming the objections of the people, which last happened in this manner:—On leaving the governor's house, I was warned to be very prudent, and not to excite attention by attempting to draw or write while any one was in sight, particularly while going near the mosques. I took care, therefore, whenever I ventured to make any memoranda, to do so under the cover of my capacious *bornoos*; and I had succeeded in avoiding all suspicion till, on coming opposite the eastern gateway of the great mosque, I stopped to examine its pointed arch. Thinking that no one was within sight, I proceeded to make a hasty sketch of it, when some of the faithful, whom I had not perceived within the gateway, came forth in great anger to inquire into my most suspicious proceedings. It was too late to stop and affect innocence: my offence was too evident; therefore, without waiting for the outburst of their indignation, I advanced to meet them, and, after the usual salutations, told them I had come from Cairo, where the learned declared that the Egyptians had invented the pointed arch, but that, as the Fowátem princes went from Kairawán to Musr-el-Káhirah (Cairo), and used the pointed arch at that time in their buildings, there was a possibility of its having been employed long before at Kairawán; and I was therefore anxious to know if they could produce any proofs of a prior claim. This so disarmed their prejudices that, with a view of maintaining the claims of their city, they took me to every pointed arch in the place, except, of course, in the interior of the mosques; and, though disappointed in my hopes of meeting with some of great or well-defined antiquity, I was enabled to see the one already mentioned, and to copy the Cufic inscription at the city gate, as well as to make other observations, and even hasty sketches of the buildings themselves.

The great mosque is rectangular, surrounded by a high wall, with numerous projecting buttresses and towers, at intervals, 174 paces north and east,* by 101 east and west, having had originally eight entrances, four on the east, and four on the west

* For proofs of this I refer to Mr. Fergusson's admirable work, "The Handbook of Architecture."

† The mosque of Soltan Berkook has, by some oversight, been attributed by M. Coste, to the year 1149 A.D., or to 527 A.H., answering to 1133 A.D. It should have been 1382—1399 A.D.; which 249 or 250 years, in the history of architecture, make a material difference. Soltan Berkook was the first of the Borgite, or Circassian Memlook kings, who reigned from 1182 A.D., to the Conquest of Egypt by the Turks, under Soltan Seléem, in 1517; and by these kings the tombs were built outside the walls of Cairo, which have erroneously been styled the tombs of the Caliphs. The Caliphs were buried where the Khan Khaleel now stands, in the city.

‡ I am glad to find from Mr. Stanley Poole, that this opinion is confirmed by the valuable authority of Mr. Lane.

§ The position of this mosque may be seen from my map of Cairo; which, though unfinished, may serve to show the locality of the principal mosques, and the original as well as present extent of the city, after the Kalá-t-el-Kebsh, or Kuttaéea, in which the Toolooneeh stands, was enclosed with its precincts.

* Mr. Stanley Poole says that the Mosque of Ebn-Tooloon was built by a Coptic Christian.

* About 440 feet by 255.

side, some of which are now closed; and over each gateway is a cupola. The interior I believe to consist of the usual hypæthral court, surrounded by colonnades, with a deep hypostylar hall at the south, or Mekkeh, end. There is nothing on the outside which has an appearance of great age; and from what I could learn, it has been often repaired, and probably remodelled at various times; though they pretend that it was always restored in exact imitation of the earlier work. The principal minaret, which is called Sómá, stands on the north side, towards the north-east corner. It is a square tower, consisting of three tiers, or stories, capped by a small dome, or cupola, and is said to be the oldest part. It has round-headed arches; but one, over the door on its western side, has a slight inclination to the pointed form. Over the eastern and western doors of the mosque the arches are pointed; but these are probably of no very early time, though the corbelling of the cupolas is very simple. They are not very unlike, in this respect, to the Cuboletta, at Palermo; and St. Giovanni degli Eremiti, built about 1132; and in one place, under the side arches, before the eastern gate, is an Arabic inscription. The round horse-shoe arch generally prevails throughout the exterior of the mosque; and though some are of an oval form, nearly resembling the pointed, few are decidedly of that character except those before mentioned. In the centre of the court is a lofty dome, visible above the walls, similar to, though higher than, those in the mosques of Cairo, where ablutions are performed before prayers.

I afterwards visited another mosque with three arches in front, which are round, inclining slightly to the pointed form, and with a certain appearance of age, but which is contradicted by the date of the Cufic inscription above them, showing that they were erected A.H. 846 (A.D. 1443).

Two Cufic inscriptions on a shekh's tomb are of late date, and of a very florid style; but contain no date, and the oldest in that character which I met with at Kairawán is at the gate called of Tunis, bearing the date of 437 A.H., or 1046 A.D.

The walls of the city have been rebuilt, and bear the record of their last restoration, in A.H. 1185 (A.D. 1772), which was made by the uncle of the Bey who governed the Regency in 1845. They are surmounted by an ordinary round-headed parapet, and strengthened at intervals with semicircular towers or buttresses.

In point of antiquity, Kairawán does not appear to possess any monuments of that importance which we might expect to find in so ancient and so sacred a city; nor does it offer any satisfactory proof of the early use of the pointed arch. All that can be learnt on this point from the people is vague and uncertain; and as permission cannot be obtained by a Christian to enter the great mosque, it is not possible to ascertain whether any vestiges are there to be found of the earlier portions of that building. Sufficient, however, may be determined, from its external aspect, to show that the general character of Arab architecture prevailed here as elsewhere, and that it was not of a style to be mistaken for the Byzantine.

The facts already stated are, I trust, sufficient to disprove the opinion that the Saracens had no style of architecture, and that it was merely Byzantine. They also explain why, in the remotest parts of Islam, one edifice was found to resemble, in many of its characteristics, another founded in Barbary, or in Egypt; at the same time that they show why others were different, and why certain countries had their own peculiarities. Indeed, it is easy to perceive how it happens that, though the Saracenic borrowed from the Byzantine, its character was so distinct. Nor is it a singular instance of a career quite independent of the predecessor to which it was indebted for its earliest features. It has been thought, because the Greeks were sometimes employed by the sultans of Egypt to erect or embellish their mosques, that these must necessarily be Byzantine; but so far from this being the case, they fail to be a counterpart of that style, either in their plan or their elevation. Moreover, Copts were, at one time, as much or probably more employed in Egypt as builders; and certain characteristics prove how greatly the Arabs were indebted to the Persians for their assistance and example. I may also observe that many domes of their mosques have more of a Sassanian than of a Byzantine character, as may be seen from the palace of Serbistan, and the great mosque of the Tâk-kesra (given by Mr. Fergusson, in his "Handbook of Architecture"), which last, built by Nushirvan, or Chosroes (Khosrou), the contemporary of Justinian, calls to mind the large vaulted recesses of the Arabs of later times, such as we see in the mosque of Soltan Hassan, at Cairo; and it is not improbable that Persian taste, welcomed by Justinian while raising the numerous edifices with which he beautified Constantinople, may have also had its influence on Byzantine architecture.

If the Saracens, on their first issuing from Arabia, adopted the churches of the Christians as places of worship, or availed themselves of the assistance of Greek, Copt, Persian, and other architects, in erecting their mosques, they did not object, at much later periods, to profit by similar assistance, nor disdain to borrow from the architecture and even the materials of the churches of the conquered provinces; and a mosque at Cairo, which, by the inscription it bears, proclaims that it was built by Náser Mohammed, in 698 A.H. (1299 A.D.), has a doorway brought from one of the churches at Akka (Acre), in Syria.* In other parts it displays, throughout, the characteristics of the Saracenic style; but the doorway is singular among those of Egyptian buildings, being of Christian (so-called Gothic) style, with clustered columns supporting a cusped trefoiled head, such as might be met with in one of our churches. It is probably of the early part of the year 1200, or the close of the preceding century.† This work is also remarkable for the character of its cupola, ornamented with the fretwork, which afterwards became so elaborate and florid in the Alhambra and Alcasr in Spain, and which is rarely seen in the mosques of Cairo.

If the golden and coloured mosaics were used at Alexandria, and obtained the name of *opus Alexandrinum*, they were simply derived from the same source as those of Constantinople, and were merely decorative features of Arab architecture, on which I do not pretend here to enter. They adorned a niche of prayer and a few isolated members of a wall, as they adorned a pulpit, or some portion of an early Italian church; but neither these nor any other solitary features are fundamental principles in architecture, or proofs of two styles being identical, however characteristic as a mode of ornamentation. The most remarkable of them in later times are in the houses of Damascus and Aleppo. But I abstain from noticing them, as well as the slab-work, *intersiatura* and other inlaid work, the coloured glass, and elaborate fret-work in stucco, and various decorative features, as they would extend this paper to an unreasonable length.

The fact is, the term "Byzantine" has been often used in a vague and inconsiderate manner; and it has been too hastily supposed that every building in which the dome is a dominant feature was indebted for it to Constantinople. But not only was the dome not confined to that style, but it was not even first used by the Byzantine Greeks. In Italy, and in some other countries, it descended directly from its first originators, the Romans, without being derived through an intermediate Byzantine channel; and if it passed, through the Greeks of Constantinople, to the eastern provinces of the empire, it was transmitted to them, with certain modifications, merely by the followers of those by whom it had been originally invented; and the credit of its first application on a grand scale belongs very evidently to the Romans.

The Byzantine style has certainly its claims on the gratitude of the Saracenic architects, for having transmitted to them certain architectural features of which they availed themselves during the formation of their own; but it must also be admitted that they soon learnt how to develope and improve upon it; and that they were as much, or more, indebted to the Persians and others for the early formation of their style. The changes, too, which the Arabs introduced into the dome were such as to give it a new character. At the same time all will allow that Byzantine architecture was less removed from that of Rome, than was the Saracenic from the Byzantine; yet no one thinks of questioning the existence of a Byzantine style, nor should we doubt the propriety of giving a new name to any one of those styles, which has partly grown out of a predecessor. If we refused to admit this, we should deny the well-known progress and development of art, and should view architecture as if it had no history; and it would be as reasonable to disbelieve the existence of various languages, because they had proceeded from one common origin.

GARDNER WILKINSON.

* I am indebted to Mr. Stanley Poole for this fact, derived from Macrizi's account of its erection. I had supposed it to have been built for Náser Mohammed by Greek architects.

† It is of course unconnected with the history or *progress* of the Saracenic style, as a similar removal and reconstruction of a doorway might be made at the present day.

AN ARCHITECTURAL JOURNEY IN AQUITAINE.*

THERE are two ways of studying ancient buildings, both of which must be diligently practised by every one who wishes to reach to a thorough historical knowledge of architecture. A man may sit down to study some one or more particular buildings: he may get up every measurement and every detail: he may make himself acquainted with every fact in its history, whether as written in contemporary chronicles or in the very stones of the building itself. Or, again, he may pass lightly and rapidly through many lands and many cities: he may see such buildings as come in his way, and may note down whatever strikes him as beautiful, as singular, or as bearing on the general history of the art: he may thus fill his sketch-book with those details and general views which please his eye; and thus fill his mind with many new facts and new ideas, without entering into a minute historical examination of any one building whatever. Each of these two ways of studying architecture is alike necessary. If, indeed, human life were long enough to allow a man to get up in detail every building whose intrinsic merit would repay the labour of so doing, it would doubtless be the part of a wise architectural student boldly to enter even upon so gigantic a task. But as such an undertaking is clearly hopeless, the next best thing to be done is for the student to go through as many countries as he can, to see as many buildings as he can, and here and there to examine in special detail some particular examples to which choice or circumstances direct him. Neither mode of study will do by itself. The buildings which a man selects for special and minute study will be almost certainly in his own country, and most probably in his own neighbourhood. Now, if a man never carries his studies beyond his own neighbourhood or even beyond his own country, a certain narrowness of local or national feeling is almost sure to be the result: nay more, from want of the power of comparison with a large stock of other buildings, he will not thoroughly understand even those with which he is most familiar, and will continually make mistakes about them, which will be at once corrected, sometimes a little to his annoyance, by any stranger whose inquiries have been more extended. On the other hand, he who looks at many things superficially, and at nothing thoroughly, will never gain a real knowledge of architecture or anything else. But he who has examined some things in minute detail will gain by the process habits of observation which will enable him to extract a great deal of real knowledge from an examination which, to another man, would be a superficial one. It is exactly the same with reading history. No man whose life is limited at the outside to fourscore years can read through all history in the original authorities. Every one must take a large part of his knowledge second-hand. But he who takes all his knowledge at secondhand, who never studies any period in original authorities, will never get beyond a very slight and superficial knowledge of history. If, on the other hand, a man really gets up some two or three periods by conscientious study of the chronicles and documents of the time, he will thereby acquire a historic sense, a sort of critical tact, which will enable him to use and to judge of secondhand histories of other periods in a way which is quite beyond the power of one whose whole knowledge is secondhand. Our architectural student, then, must see many buildings hastily, and study a few attentively: he must know something of every building, and everything of some buildings. The one process enlarges his views, the other strengthens and condenses his powers. The great masters of our subject have all practised both methods of this alike; though, of course, each has its own votaries, who follow it, not in exclusion of, but still in preference to the other. As the great master of minute knowledge of particular buildings, every one who hears me will at once supply the illustrious name of Professor Willis; while Mr. Petit may no less undoubtingly claim the first place among those who have gone rapidly through many lands, with a keen eye alike to the artistic beauty of particular buildings and to the essential characteristics of successive styles of art.

I mention all this, because, while I have at dif-

* A paper read by Mr. E. A. Freeman, M.A., at the Architectural Museum, on Wednesday, March 20th.

ferent times and places endeavoured to carry out both these methods of inquiry, in what I have to say this evening I shall give you the results of one method only. What I have seen in France and Aquitaine I have seen, I hope, not carelessly, but still, in a certain sense, cursorily. In a foreign country, especially in one whose architecture differs so widely from our own as that of Aquitaine, we shall commonly learn more by seeing as many buildings as we can consistently with anything like a careful inspection of each, than by stopping to get up any one in very minute detail. The latter task belongs rather to the antiquaries of the country, who have time and opportunity for it, while the business of the passing traveller is rather, by observing as many buildings as possible, to find out the leading peculiarities of the local style, and to compare it with that of his own and of other lands. But, of course, as I have before said, one who is already accustomed to examine buildings in detail will, even in this comparatively hasty sort of examination, find out a good deal about the history of particular buildings. For my own part I have seen and drawn as many Aquitanian churches as I could,—enough, I hope, to give me some fair notion of the peculiarities of Aquitanian architecture. But there is no one Aquitanian church which I have studied in the same minute way in which I have studied many churches in England. There is no building in Aquitaine about which I could undertake to talk and dispute in the same way that I would undertake to talk and dispute about St. David's, Llandaff, Wells, Malmesbury, Leominster, or Waltham. I mention this that my hearers may know what they have to expect,—a general account, historical and artistic, of what I have seen of the architecture of the duchy, but not any minute historical description of any one particular building.

I have another remark to make by way of preface. The study of architecture ought always to go hand in hand with the study of general history. He who studies the history of any particular country, really leaves out a very important part of his subject if he does not obtain some knowledge of its successive forms of architecture. What sort of churches and houses people built at any particular time and place is as much an integral part of history as what language they spoke, what weapons they used, what was the nature of their law-courts, or of their political assemblies. But, still more is the student of architecture bound to be also a student of history. He cannot learn the first rudiments of his subject, without attending to geography and chronology: he must know where such-and-such buildings are; when and by whom they are built. And this ought not to be a mere dead knowledge of names and dates: he should know something of the real condition of the country at the time when the buildings were built; what kind of people they were who built them; what language they spoke; what religion they believed; of what government they were subjects. A chronological table of styles, and a modern map, will not do for this: really to understand architecture historically, a man must go through a good deal of general historical reading, and must, above all things, thoroughly master the fluctuating boundaries of various states at various times. Without this a man may be able to admire a building as a beautiful object: he may even be able to reproduce its likeness or its development, in stone or mortar; but he had better not talk or write about buildings, or styles of building, historically; because he is sure to make blunders if he does. Writers of general history very often make blunders when they touch incidentally on architectural matters: writers of architectural history constantly make still greater blunders, from not knowing the first rudiments of general history. And about no possible subject have more such blunders been made than about the architectural history of Gaul.

I say Gaul advisedly, not France. I use the old geographical expression, not the modern political expression. Gaul is a certain territory bounded by certain seas, rivers, and mountains. France is whatever Frenchmen can annex or conquer, whether within the limits of Gaul or not. The boundaries of France have changed from century to century: how flexible they are we have all seen with our own eyes within the last twelvemonth. France, Francia, in history, has two great meanings. It means first a German kingdom of the Early Middle Age, of which Karl the Great, whom Frenchmen call Charlemagne, was the most famous king. Karl was a Frank, a German: he spoke German, and had his capital at Aachen, which Frenchmen call Aix-la-Chapelle. His hereditary kingdom included Central Germany and Northern Gaul. This was the Francia of those days. Aquitaine, Saxony, Italy, were conquered countries. When his great empire was divided, Central Germany and Northern Gaul fell to different rulers. But each kept the old name. We read of Eastern Francia and Western Francia, Teutonic Francia, and Latin Francia. Nor are all traces of the name quite gone: if we call the kingdom of Paris France, we also still call a district of Germany Franconia. The modern kingdom of France began in the ninth century, under Charles the Bald: it was fully established as a kingdom, with Paris as its capital, and Old French as its language, by Hugh Capet, in the tenth.

France, then,—that is, Western or Latin France,—may be roughly described as Gaul north of the Loire, and west of the Maas and the Saone. Within that limit, from at least the tenth century onward, the prevailing tongue was that which has grown into modern French; and the country was held partly by the king of the French, at Paris, partly by princes who owed him at least a nominal homage. From the Loire to the Pyrenees, also, the king of the French claimed the like nominal homage; but the position of things was wholly different. The language was different: the language of Aquitaine and Provence, the tongue of the old troubadours, and which is still the language of the people, is not French at all: it is of course closely akin to French, just as Spanish and Italian are; all being derived from the Latin; but it is as much a distinct language as Spanish and Italian are; and it is quite a mistake to talk of people in those countries speaking "bad French," simply because they still speak their own tongue, which was a written and a polished language before French was. The blood was different: the Franks settled to a certain extent in Gaul north of the Loire, though they settled in such small numbers that the Franks in Gaul, instead of Teutonizing Gaul, became themselves Romanized. South of the Loire the Franks did not settle: whatever Teutonic blood is there is not Frankish, but Gothic. In the extreme south, too, the aboriginal blood is different. The Frenchman is a Celt with a slight Frankish infusion: the Gascon is a Basque with a slight Gothic infusion. And if the king of the French did claim a superiority over Aquitaine, it was yet more nominal than his superiority over Normandy, Flanders, or the Duchy of Burgundy. With the sovereigns of Normandy and Flanders, his nominal vassals, he had at least relations of some kind, warlike or peaceful; but with the Duke of Aquitaine and the Count of Toulouse he had no practical relation at all: he had no authority within their dominions, and they did not even think him worth making war upon. East of the Rhone is the south: east of the Maas is the north. The Parisian kings, down to the thirteenth century, had not even a nominal superiority: east of the Rhone lay the kingdom of Burgundy (carefully to be distinguished from the duchy), at first independent, afterwards united with Germany. In the north, Lorraine and Alsace were not French, but German. Alsace is still German in speech, and Lorraine was only joined to France in the last century.

All this historical sketch is really necessary, if we wish thoroughly to understand our architectural subject. You must try and realize that, during the whole Romanesque period and a great part of the Gothic period, Aquitaine was no part of France; therefore we must not look for French architecture in it till the later days of the Gothic period. The Romanesque and Early Gothic architecture of Aquitaine is utterly unlike French architecture: there was, in truth, no more reason why it should be like it, than why it should be like German, Italian, or Spanish architecture. The Aquitanian buildings were not built by Frenchmen: they were built by men of another race and another language, and living under another Government. France and Aquitaine have these points in common,—both were subject to the old Roman empire,—both were subject to Karl the Great,—both have been subject to the Parisian kings since the fifteenth century; but the two former facts are too early to have any effect on Aquitanian architecture: the last is too late to have much. In talking of Mediæval architecture, we commonly mean the architecture of the period from the middle of the eleventh century to the middle of the sixteenth. Of these six centuries, during the first five the greater part of Aquitaine was French in no possible sense.

The name of Aquitaine, like so many other geographical names, is used in history in various senses at various times. Like the words France and Burgundy, the word Aquitaine is far from always expressing exactly the same extent of territory. It will be most convenient for me to use the word in the widest sense in which I find it ever to have been employed; namely, as denoting the whole of Gaul south of the Loire and west of the Rhone. It will thus include the two great principalities of Southern Gaul, the duchy of Aquitaine, so long one of the fairest possessions of our own kings, and also the great county of Toulouse. During the whole of the Romanesque period both of these two countries had no sort of practical connection with the crown of France, and it was only towards the close of the Romanesque period that the duchy of Aquitaine came, by the marriage of Henry II. and the Duchess Eleanor, into the hands of the same sovereign as England and Normandy. Eleanor had indeed already been the temporary wife of King Louis of France; but so short a connection, the time of which, too, was largely occupied by Louis's crusade, could have had little effect upon the province. Up to that time the duchy had been ruled by its own independent princes. From that time, that is, from the middle of the twelfth century, till the middle of the fifteenth century, the duchy of Aquitaine remained annexed to the crown of England; and, after the peace of Bretigny, in 1360, it was held in absolute sovereignty without even a nominal subjection to France. The boundaries of the duchy were, however, gradually reduced; and, in the great war of Henry VI.'s reign, its last relics were finally lost. In 1452, Bourdeaux and Bayonne became, for the first time, French cities. The county of Toulouse, or Languedoc, was annexed to France in the thirteenth century; but it long retained much more of local independence than most parts of the kingdom.

We see, then, that, during the Romanesque period, Aquitaine was perfectly independent; while, during the Gothic period, it became gradually more and more exposed to foreign influence, English and French. I do not scruple to say English influence. Nothing, indeed, is more inaccurate than the common way of talking as if England, as England, had, say in Henry II.'s time, held nearly half of France. The truth is that a great French prince, Duke of Normandy and Count of Anjou, was also King of England, and ruled England pretty much as a dependency of his French possessions. But when John lost all his French fiefs north of the Loire, matters were quite altered. England had before been a dependency of Anjou: Aquitaine was now a dependency of England. The English influence is less than one might have expected, but it does exist. Now the result of this brief sketch of Aquitanian history,—perfect independence during the days of Romanesque architecture, close connection with England and France during the Gothic age,—is visibly written on the stones of the Aquitanian churches. The Romanesque of Aquitaine is something utterly different from the Romanesque of England or of Northern France. The true native Gothic of Aquitaine is also something no less different from the Gothic of England or of Northern France. But, while the native Romanesque stands by itself, and is the only form of Romanesque known in the country, the native Gothic is found side by side with examples not widely differing from the Gothic of Northern France, and with a few in which a distinct English influence can be discerned.

It has often struck me that, during the Romanesque period, the buildings of different countries differ more in the shape, plan, and outline of the buildings themselves than in their strictly architectural details; while, during the Gothic period, there is also a considerable difference in shape, plan, and outline between the buildings of different countries; yet the most important differences are to be seen in the details. This is certainly true as regards the Gothic architecture of England and of Northern France. The outlines of a great English and a great French church differ a good deal; but the difference of outline is far less striking than the difference in detail. The difference in outline resolves itself chiefly into this: the French architect gave his building an enormous height, which forbade any predominant central tower: the English architect preferred a moderate height, which allowed that greatest of all ornaments to be the chief feature of the building. Also, the French architect preferred an apse, and the English architect a square end; and on this difference followed a different arrangement of Eastern chapels. But the really important features of the building, within and without, in elevation and in ground-plan, are pretty nearly the same. Each has nave, choir, and transepts, with aisles at least to the nave and choir: each has arcade, triforium, and clerestory. The only really striking difference is the greater comparative height of the French building. I say comparative

height, for it must not be supposed that the common sort of French cathedrals and abbeys at all attain to the enormous height of Amiens or Beauvais. There are a good many very fine French churches, whose height ranges from 70 to 80 feet, the common height of our own cathedrals. But then these churches are, in other respects, what we should call second-class churches; while the English churches, of a height from 70 to 80 feet, cover as much ground as any churches in Christendom. The detail of a French and of an English church is far more widely different. In the Early form of Gothic, the development took an utterly different course in the two countries. England outstripped France in some things, and France outstripped England in others. Salisbury and Amiens cannot be said to be in the same style: Salisbury has as far outstripped Amiens in its mouldings, and in the sections of its pillars, as Amiens has outstripped Salisbury in its windows. In the later Gothic again, though Perpendicular and Flamboyant have much affinity in principle and resemblance in general effect, they have hardly a minute detail in common. In Romanesque, on the contrary, an English, an Aquitanian, a Lombard, a German, and a Byzantine church, differ far more widely from each other in outline and in general effect than they do in architectural detail. And such differences of detail as exist admit of a very easy explanation: the difference consists in the imitation of those classical models which are common to all, being more or less exact. This probably explains the distinction. The Romanesque architects in each country followed Roman models with more or less success. For the plans of their buildings they had to consult the objects of these buildings; and they hit upon different plans in different countries. For their details they imitated such Roman models as they had access to, and their imitation was of course more or less exact as such Roman models were more or less familiar to them. If we go from England to Italy, we find the Romanesque of each country becoming more and more Classical at every step. The Romanesque of Aquitaine is more classical than the Romanesque of France, as that again is more classical than the Romanesque of England; but it is less classical than the Romanesque of Italy, or even than the Romanesque of Provence. Still, though the details of an Aquitanian church come decidedly nearer to the Roman model than those of our own familiar Norman, these are not the peculiarities which at once strike the eye of an Englishman. What does strike him at first sight is the utter difference in outline, ground plan, and proportion, from the churches of his own country. So, too, it is with the native Gothic: the general idea of the building is so different from anything English or French, that one hardly stops to compare the details. The windows of the wonderful Cathedral at Alby are nothing very wonderful: their tracery is much the same as common French tracery of the same date; but certainly no one north of the Loire ever saw anything to liken to the ground plan and elevation of the building.

The Romanesque churches of Aquitaine may be divided into two great classes, those with and without the dome. Such a division as this at once shows how utterly different they must be from anything in England or Normandy. With us the cupola is a modern invention: our only domical cathedral is that built by Sir Christopher Wren. In a large part of Aquitaine, especially in the country of Perigord, the dome was used as freely as ever it was at Byzantium. The abbey of St. Front, the present cathedral of Perigueux, is thoroughly Byzantine in its conception: it is a Greek cross with a central dome, and one over each limb, just like St. Mark's at Venice. I leave to M. de Verneilh and to Mr. Parker to describe in detail the history and the peculiarities of this wonderful and venerable church, and the fragment of yet more venerable antiquity which is attached to it. The church itself is of the eleventh century; but relics of a far earlier basilica are worked into its western portions. St. Front may be taken as the fullest development of the domical principle in Aquitaine: there we have the Byzantine forms of structure and arrangement fully carried out. I do not remember to have seen another church with the principle consistently carried out in the five cupolas of the Greek cross; but there are many others with a single central dome, or with a series of domes down the nave, the vaulting of each bay taking a domical form. The dome seldom stands out boldly, as it seems to have originally done at St. Front: it is commonly covered by the roof, or a central dome is externally veiled by a central tower. The dome reaches, in isolated examples, through the whole extent of Aquitaine in the widest sense; indeed, it actually crosses the Loire and appears in the noble church of St. Nicholas, at Blois, which has no other Aquitanian features. But the dome here is of comparatively little account. A church with three towers, much such a one as many in England and Normandy, has its central tower vaulted in a domical shape instead of any other; that is all;—something very different from the—internally, at least,—predominant domes of the south. Every one will readily understand that between two countries so architecturally distinct as France and Aquitaine a border region must necessarily lie. This region is the valley of the Loire,—the more so, as, though we speak roughly of that river as the boundary of style and language, the actual political frontier ran a little to the south of it. Poitou, Anjou, Touraine, Berry, are border lands, in which the Aquitanian peculiarities begin to show themselves, but are not so confirmed as in Gascony and Languedoc. For instance, the common vaulting of the Angevin and Poitevin churches is not domical, but it is an approach to the domical idea. Bourges, for instance, is a French city south of the Loire: it stands on what, in earlier times, had been Aquitanian ground, but it had become French at least as early as the twelfth century. Now the Metropolitan Church at Bourges is quite French, except that the omission of transepts in so vast a church seems to bespeak an Aquitanian influence. The church of St. Peter, in the same city, is also French: Pleinpied Abbey, just on the border—the border, I mean, when Pleinpied Abbey was built,—is still essentially French, but I thought I could discern a few Aquitanian touches. It is well to remember that, if architecture has its chronological transitions, it has its geographical transitions as well.

The Romanesque churches, which are without domes, though of course they differ less from Northern forms than the domical buildings, are still very unlike what we are used to in England or even in northern France. With us a large Romanesque church has the triple internal division strongly marked: there is an arcade, a clerestory, and between them a triforium, which is not uncommonly almost as large as the arcade below it. A small church omits the triforium and sometimes the clerestory also. In a small church the piers are most frequently columns,—columns doubtless by no means of classical proportions, but still actual columns, with distinctly marked bases, shafts, and capitals. In larger buildings nothing is so common in England as the vast cylindrical pier, not a column, but a round mass of wall. This, as far as I know, is peculiar to England; but both in England and Normandy we find the rectangular pier, with shafts set in the angles, the parent of the clustered pillars of Gothic times. Vaulting scarcely ever occurs, except in the aisles of large churches and in the chancels of small ones. To throw a vault over one of the four arms of a great minster seems to have come into the heads of no English architect till late in the twelfth century, when the style was transitional rather than pure Romanesque. The barrel-vault of the chapel in the White Tower is not a real exception, the size of the building is so small. In Aquitaine all is utterly different: piers are strictly and sternly rectangular, commonly without even attached columns; and these piers very commonly run up the whole height without triforium or clerestory: a perfectly plain barrel vault over the whole is almost universal. The Abbey of St. Saturninus or St. Sernin at Toulouse, the great glory of the style and one of the main objects of my pilgrimage, follows a type utterly strange to English eyes. We have many, even Romanesque churches, which have a clerestory without a triforium: at St. Sernin we find the to us strange portent of a clerestory without a triforium. The arches are of two orders, plain, rectangular, without shafts or mouldings; but a tall shaft with a capital runs up to support the barrel-vault. The triforium is the most English-looking thing in the church, but the Tolosan architect has not fully grasped the Northern idea of several orders with nook-shafts. This magnificent church, one of the noblest in Christendom, was consecrated by Pope Urban II., in 1096, but the work had been begun as much as forty years earlier. In smaller churches we find the rectangular principle carried out still more fully: the vault rests, not on shafts, but on plain flat pilasters. In the great churches we sometimes find double aisles, as at St. Sernin and in a fine church at Bagnères de Luchon, which was being destroyed when I was there. Among churches of moderate size, none struck me more than St. Aventin, near Bagnères de Luchon, a church with a central and a western tower, though without transepts. The piers and vaulting pilasters are sternly rectangular, but there is a clerestory, and the vault is cellular. I had great doubts of its genuineness. Serge, near Arreau in Gascony, is a perfect example of a small church in the local Romanesque; a nave and aisles terminating in apses, no tower or transepts, plain square piers, and pilasters of two orders supporting the barrel-vault. The church claims a Carolingian antiquity, which, without some historical evidence, I can neither assert nor deny. The west doorway cannot be earlier than the eleventh century, and looks more like the twelfth, but it may quite possibly be an insertion in an earlier building: another very fine doorway at St. Aventin certainly is.

As I have already said, the details of these churches, when they have any, differ far less from Northern types than do the outline and ground-plans of the buildings. There is many a shaft and capital, many a small window, many a corbel-table, which would not seem the least strange in any of our familiar Norman churches. But there is with all this a tendency to a more classical character. The most Italian-looking thing I saw was the façade of the cathedral at Angoulême, which is something utterly different from the body of the church, which, though domical, differs in its detail from Norman work. But it is of the doorways mentioned just above that I wish specially to speak. The grand Norman doorway, with its many orders and many small shafts, is, in its fulness, an idea essentially English. Foreign examples, even in Normandy, seldom approach its full boldness and richness. They generally retain some vestiges of the days when the real doorway was square-headed, with an arch over it. In England, the tympanum either vanishes altogether or becomes a mere semicircular stone in the top of a round-headed opening. Now, I saw in Aquitaine two types of Romanesque doorways. One is far more classical than the other, and I conceive it to be the genuine native type. Instead of the many receding orders, a single column, on each side, of a much nearer approach to classical proportions than we are used to, supports the archway. Mr. Petit has drawn several examples in Provence, which I have not seen: there is also a fine one at Alby. Of this I only know one example in England, the very remarkable west doorway of St. Woolos, at Newport, Monmouthshire, where I have always fancied that the two pillars must really be Roman columns from Caerleon, used up again, and fitted with Norman capitals. There is quite another, and indeed more common type, which, though not exactly like our English examples, comes very much nearer to them. This type has, like the English doorways, many receding orders, but they are not so regularly marked by a single small shaft in each order. Thus it is that at Serge, already mentioned, most of the orders are left rectangular. In that at St. Aventin, some of the orders have coupled shafts. This last is an Aquitanian characteristic, of which I shall have to speak again. The coupled shaft is common enough in England in some positions; but it is far more extensively used in Aquitaine; and I should doubt whether any English architect would have applied it to one of the orders of a doorway. Still, these doorways at once strike us as having an English look as compared with the other things about them. Is it possible that they can be memorials of the connection between England and Aquitaine under Henry II.? the more so as some of them—that of St. Aventin, most certainly—are additions to earlier buildings. I merely throw this out as a hint for consideration, without at all asserting that it is so, still more without deciding whether, if it be so, English ideas were imported into Aquitaine, or Aquitanian ideas into England. On the whole, it looks more like the former; but I ought to mention that one of the finest and most English-looking doorways, that of Lescure Church, near Alby, is in a district which was never permanently held by any English king.

Now, going inside this same church of Lescure we may remark another slightly classical tendency. The church, though I suspect it was designed to be domed, has, in its central tower, and in the absence of anything worthy to be called transepts, a good deal of affinity to our own churches of the Iffley type; but we miss the splendid receding arches under the tower of Iffley. At Lescure the western tower arch has a single arch of far more Roman proportions: the eastern arch has coupled shafts of the same sort. The arch into the apse is left square. In short, the tendency to a single shaft of something like classical form, where, in England, we should find two or more slenderer ones, meets us in every-

thing. The capitals are of all sorts: as might be expected, the mere sculpture is commonly better than in England.

The pointed arch was introduced early, and is by no means necessarily a sign of transition or of any Gothic tendency. Everything that I saw in Aquitaine confirmed me more and more in my old belief, that the use of the pointed arch was introduced from the east; that it was employed first in occasional positions where it was found more convenient, and afterwards as the usual form of the main arches, but in both cases at first without any change in Romanesque detail; that, finally and gradually, a system of detail more suited to the form of the arch was developed, and thus Gothic architecture. Now, the first of these stages, where the pointed arch is not systematically used, is not transitional, nor does it show any Gothic tendency. It was first introduced in barrel-vaults, and in the arches under domes. Mr. Petit has well pointed out the manifest advantages of the pointed arch in the former case. So in the latter, you gain a great advantage of height in a position where it is much wanted; and consequently the pointed arch is used invariably, or nearly so, under the cupolas. I say nearly so, to be safe. I have myself never seen an Aquitanian dome resting on any but pointed arches; but it is quite possible that there may be some, the more so as at Lescure, which looks so much as if it were designed to be domed, the arches are round. M. Felix de Verneilh, the great expounder of Aquitanian domical architecture, has lately discovered a class of domical churches in Westphalia, in which the arches under the domes are round. But the pointed arches under the cupolas of Perigueux and Angoulême in no way give them any Gothic feeling: they rather make the Oriental cupola still more Oriental: they point to the influence of the Saracen far more than to the influence of the Teuton. The cloister of Moissac Abbey may, perhaps, be set down as a later stage. Taken in itself, it is, like the pointed churches of Sicily, not Gothic, but Saracenic; but all buildings of this sort must have given a great impulse to that systematic use of the pointed arch which in the end produced Gothic. The Moissac cloister dates from the year 1100: happily it has the date inscribed on one of its stones. Detached coupled shafts, grouped under one abacus, support pointed arches. The effect is quite Arabian. There is a plainer cloister of the same kind attached to the great church at St. Emilion; another very fine one, but with round arches, at St. Bertrand de Comminges.*

BOILER EXPLOSIONS.

IN France, where fuel is expensive, every effort is made to reduce the consumption by the perfection of steam-boilers. MM. Hédiard & Joly, of Argenteuil, have constructed a boiler, supposed to give advantages of economy of fuel and perfect safety in the getting up of the steam. This boiler, occupying only a small space, can be cleaned out with facility. It is composed of four distinct parts, viz., the generators, the desiccators, a regulator of the supply, and the reservoir or steam-chest. The generators consist of three small boilers placed longwise over the furnace, and inclined at a rate of 0m. 25c. per mètre: they communicate at the bottom by a feed-tube, and the steam is generated in a transverse pipe at the top, to be distributed into the drying apparatus, which is separated from the generators by an arched return-flue. The drying-box, if we may so call it, consists of two series of horizontal tubes hermetically sealed at both ends, and so disposed that the steam is forced to pass through all the sinuosities before arriving at the regulator. This latter is formed of two discs superposed, one receiving the water from the steam, the other (uppermost) leading to the pistons and carrying dry steam. As these pipes are all exposed to the direct action of radiated heat the steam is dried and superheated. The *Journal des Mines* says that a boiler of this system, of twenty-five or thirty-horse power, can transform into dry steam from nine to ten litres of water per kilogramme of coal, even when supplied by chilled water.

We do not see how the risk of explosion is avoided. Superheated dry steam is economical in its working, as there is less wear and tear of pipes and bends, also of the piston, there being no possibility of priming. Explosions have frequently taken place in hot-water apparatus by the decomposition of the steam into its constituent gases. Superheated dry steam cannot be trusted with the machinery we have at present, neither can steam in a spheroidal state. Our repeated boiler explosions testify that steam requires further study, and that to make use of and humour the giant with safety we must not wait for experience by accidents. Let our heads of factories (noble some of them are) have a series of experiments *on steam*, made under a committee of their own body. There is a society established, but its experiments have never been published to the world. A boiler explosion is a melancholy spectacle. The ruin of bricks, pieces of iron, balk, around which the forlorn and wailing friends of the workmen are grouped, and the "other" end of the boiler, stand in full relief against our want of the study of steam: especially when a lad, who had providentially escaped, tells us that "she was all right five minutes ago." Armstrong says that most accidents occur at an early hour in the morning, when, at about seven o'clock, the boiler is left in charge of a boy. Locomotives very seldom explode, except when left standing with no one to mind them; the driver being inside the shed, perhaps, taking a smoke.

* To be continued.

THE PROPOSED NEW FOREIGN OFFICE.

MR. SCOTT'S new design has been submitted to Lord Palmerston, and the Premier, as we understand, has expressed his approval of it.

Whatever is to be built,—involving an outlay of, say, 200,000*l.*,—it is of the utmost importance that the position should first be thoroughly considered. If we understand rightly, according to the original arrangement, the principal façade of the intended building will be in Downing-street, *not in a line* with the end of the Privy Council Office forming the other side of the street, to which at one point it will approach more closely than is desirable, and involving, we suppose, the removal of the Colonial Office.

NEW SYNAGOGUE, UPPER BRYANSTONE STREET, LONDON.

THIS building has been erected for the convenience and use of those members of the Jews of the Spanish and Portuguese congregations who, residing at the west end of London, are distant from the principal place of worship in Bevis Marks, which is the oldest devotional edifice of the Jews in England. In 1859 the building committee invited a limited competition for the new building; and, to aid them in their selection of a design, called in the assistance of Mr. Lett, architect, by whose advice the drawings of Mr. Collins, of Torrington-square, were selected, and that gentleman was appointed to carry the design into execution.

The general character of the building is Saracenic freely treated. The elevation to Bryanstone-street is 75 feet in length, and is composed of a centre and two wings, the west wing being gabled, with cornice supported by cut trusses, and the east rising as a tower and spire. Beyond the east wing is a minister's house. The façade is built of parti-coloured bricks, with stone dressings. The entrance is by a porch of three arches supported on coupled columns, with carved caps. The windows are formed into separate lights divided by stone columns with carved caps, and finished with parti-coloured brick arches with pointed heads.

The porch leads to a loggia or vestibule, 23 feet by 12 feet, from which branch off on either side Portland stone stairs leading to the ladies' galleries (as by the requirements of the Jewish ritual the sexes are separated during divine worship). The "Synagogue" itself is entered from this loggia, and is 50 feet in length by 31 feet in breadth, and affords accommodation on the ground floor for 240 males, who have also attached on the same level the requisite accommodations for lavatory and other necessary purposes. Between the staircases over the vestibule and adjoining the synagogue itself, into which it opens by windows, is the committee room, 23 feet by 12 feet 6 inches.

The interior of the synagogue is divided into nave and side aisles, by light ornamental columns in two stages, the first supporting ladies' gallery and the upper arches, of a slight horseshoe form, above which is a clerestory with semicircular windows filled in with stained glass. Between the windows and over each column are ornamental brackets, from which spring arched ribs, dividing the ceiling into coffers, the centre of each of which is occupied by a flower communicating with ventilating apparatus.

At the east end of the synagogue an elliptical recess or apex forms the sanctuary, which is approached by a flight of marble steps. The lower portion of the sanctuary is formed into closets, in which are deposited the sacred scrolls of the law, the upper part being formed with windows filled with painted glass having inscribed thereon, in Hebrew characters, the ten commandments, &c. The ceiling of sanctuary is formed in a domical shape, pierced with small star-shaped apertures, filled in with different coloured glass, which throw light on the scrolls of the law when the doors of the closet containing the same are thrown open. The height of the nave interiorly is 30 feet, and of the aisles 24 feet.

The building is warmed by hot water apparatus, and ventilated in summer by means of a hot water coil in roof, all supplied by Messrs. Weeks & Co., of Chelsea.

The cost of the building, including fittings, but exclusive of site, and of decoration, which is postponed for a time, is about 3,500*l.*

Messrs. Pickard, of the Caledonian-road, were the contractors.

RESTORATION OF CHICHESTER CATHEDRAL.

THE provisional committee for rebuilding the spire of Chichester Cathedral have received a report from Mr. Scott "as to the extent to which the fall of the tower has endangered or damaged the existing portions of the building; the best course to be taken in the reconstruction of the fallen parts and in providing for the present and permanent security of the fabric generally; and as to the probable cost of effecting these objects."

He urges the necessity of a thorough and substantial reparation,—

"As it is clear that an ancient and defective structure, though it may remain long without showing symptoms of danger while suffering from no special cause of disturbance, can by no means be viewed as being in the same position after the fall and rebuilding of its great central feature."

As to the fall, the writer says,—

"This ancient injury [fire] was, no doubt, one cause of the weakness which seems to pervade the older portions of the building; and even now the effects of the fire may be seen in the triforium galleries, in the ragged, discoloured, and half-ruinous condition of the stone work. I am of opinion that this state of dilapidation, increased, as it had become, by the lapse of time, would have soon demanded general reparation, had no accident occurred to shake the building; but under circumstances so extraordinary as those from which it is now suffering, I feel sure that its permanent safety imperatively demands that every structural defect shall now be made good."

As to the rebuilding,—

"The work must be done in a much more massive way, and with better materials, than is necessary in an ordinary work. The foundations must be carried down, at whatever cost, to a stratum of undoubted firmness. They must be spread unusually wide, and be constructed of large and massive materials, laid in the hardest cement. The piers and arches must be of solid and closely-jointed block stone, and that of great hardness and strength; and the whole carried out with an excess of strength beyond what, in an ordinary structure, would be deemed necessary. No soft stone or rubble-work should be admitted in any part of the work."

Aiming at strength and security rather than architectural restoration, and in no case reckoning on work where needed for beauty only when unnecessary for strength and safety, Mr. Scott calculates the probable cost as follows:—

"The rebuilding of the tower and spire	£25,000
The rebuilding of the four adjoining bays..	12,000
The necessary repairs of other portions....	7,000
The cost of shoring up, and of providing temporarily for the services	2,000
	£46,000

When to this is added the cost of superintendence, and of other incidental expenses, I fear that it would be unsafe to reckon upon an outlay of less than £50,000."

NEW MUSIC HALL, OXFORD STREET.

BEHIND the houses at the end of Oxford-street, on the north side, where it adjoins Tottenham Court-road, a vast hall, called "The Oxford," has risen "like an exhalation," at the cost of Messrs. Morton & Stanley. The growth of huge and costly halls for music and refreshment, not merely throughout the metropolis, but in the provinces, is one of the peculiarities of the day. In the present case the hall is 94 feet in length, 44 feet in width between Corinthian columns which support the roof, with a promenade beyond on each side, 6 feet wide, and 41 feet in height. The ceiling is coved on to the walls, and springs from the top of an ornamental entablature. The columns are arranged in pairs, leaving a large opening between each pair. The lines of the columns are carried across the ceiling by ribs, the centre portion of which is enriched by projecting ornaments: these ribs are further connected together by large centre flowers fixed in a deep recess. The ceiling ornaments are generally perforated to allow of an escape for the heated air. Windows in the outer walls are expected to supply the necessary fresh air.

The entrance from Oxford-street and the stair-

case to galleries are cleverly treated. A large glass chandelier here has a very pretty effect from below,—a tree of light. The hall is (over) lighted with star burners. This part of the work was done by Messrs. Weston & Curel. Messrs. White & Parlby have well executed the ornaments *in relievo*, especially the gallery front, the ornamental panels between ribs, and the enriched panels in entrance. These are of their own peculiar cement. The columns in the entrance-hall are enriched with composition ornaments. The caps, enrichments on lantern lights, trusses, and other matters are in *carton pierre* and *papier mâché*, also by White & Parlby. The interior is rendered with Martin's cement, from Mr. J. C. Part. Messrs. Holland and Hannen were the general contractors, and Messrs. Finch Hill & Paraire the architects.

A little positive colour is needed, especially at the stage end (the west), which has at present a somewhat hazy and indefinite aspect. When the large looking-glass which is to fill the centre panel here is in its place, the appearance may be improved, though looking-glass is often a treacherous adjunct.

LEEDS GENERAL INFIRMARY COMPETITION.

THE board of management of the Leeds General Infirmary have awarded the first premium to Messrs. Lockwood, Mawson, & Mawson, of Leeds. They were assisted in their selection by Mr. Dobson, architect, of Newcastle, and by the report of the medical committee. The plan is avowedly made with reference to the views we have advocated.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the thirteenth meeting of the Liverpool Architectural Society, held on the 20th inst., Mr. J. M. Hay presided.

After some conversation on various topics, Mr. Lewis Hornblower read a paper, entitled, "A Peep into Futurity; or, The future Building Sites of Liverpool." Mr. Hornblower, in the course of his remarks, after sketching the progress of the town, said,—Attempts have been made to erect blocks of dwellings for the artisan similar to those in Scotland, but there appears to be an insuperable objection in the English mind to occupy a house in common with another. An Englishman's home is his castle, and each and all feel the independence consequent upon a separate and distinct dwelling. In the future of Liverpool care must be taken for the position of the dwellings of our working classes. Many sneers have been levelled at that industrious and hard-working race, the *Welsh builders*. If it had not been for their foresight and industry I do not know where the working population of Liverpool would have been housed. Great and marvellous improvements have been made in the sanitary condition of the town, under the direction and superintendence of the worthy and talented borough engineer and his able assistants; but still greater improvements must be made. Urge, Mr. President, all your influence, and urge, too, gentlemen, your individual influence, to improve the thoroughfares of the town. Easy access must be obtained from north to south, from east to west: trade must not be curbed by selfish or niggard views: the old cry of what has posterity done for us should be stilled. We must seek our own and also another's good—look prospectively. It is a fact that this town of Liverpool has not one good approach. The best is that by Scotland-road, and what is it when you get past the wider portion? You arrive at a long, narrow, dull, insipid street, leading to the centre of the first commercial city of the world. Approaches must be made: the different sections of the suburbs must be connected. We are now, gentlemen, only on the threshold of prosperity. I see before me the germ and embodiment of future talent. The architects of Liverpool will have a scope hitherto unparalleled. The influences of a correct taste are abroad: people will not be content with second-rate work, their appreciation of which is improved: everything shows this. The style of the furniture, the designs of the different fabrics, the decorations of the dwellings, the taste that is displayed in the commonest articles of use or ornament,—one and all speak unmistakably to the progress of the appreciation of art. And shall architecture slumber? No. It has been too long the custom of our townsmen to seek foreign aid in the preparation of designs for any building of importance, instead of fostering local talent. I trust, from the acknowledged skill of the rising members of the profession, our opulent townsmen may follow Mr. Brown's example, and find it to be their interest to employ the talent which is at their doors.

THE STAGE.

Princess's Theatre.—Mr. Fechter is unquestionably a great artist. All that he has done since his appearance in England has been marked, not merely by high intelligence and knowledge of his art, but by original views and creative power. His appearance in *Hamlet* has not disappointed his warmest admirers. A finer picture than that he presents when, at the rising of the curtain, he walks in behind the king and Gertrude and takes his seat at the side, the incarnation of dreamy sorrow, has been seldom seen; and, from that moment until he falls dead on the stage at the close, he holds the audience in his hands. The extreme of naturalness marks the performance: he has given up, perhaps never knew, many of the usual points, and is not to be tried by the accustomed standard. He depends for the effect on the complete conception of the character, intense feeling, and complete absorption. The result is admirable.

MESSRS. THOMPSON'S SERIES OF ARCHITECTURAL PHOTOGRAPHS.

SINCE our first notice of this series of architectural photographs, by Mr. F. Bedford, issued by Messrs. Thompson & Co.,* a dozen have been added. These include the wonderfully rich Western Screen of Exeter Cathedral, a very fine photograph; a view of the North-west Tower (Norman, with Decorated window inserted), and one of Bishop Stafford's tomb, in the Lady Chapel, of the same cathedral (very charming in colour); the Interior of Wells Cathedral (the nave looking west); a general Exterior View of the same Cathedral, from the south-east; the recently restored South Porch of St. Mary's Redcliff, Bristol; and a general View of Salisbury Cathedral, from the north-east, including the central tower, in anticipation of the fall threatened by Professor Willis. We may mention, as showing the willingness of the publishers to listen to advice, that an additional photograph is presented to the subscribers to displace or accompany one to which we took an objection in our previous notice.

IRISH BUILDING NEWS.

Dublin.—A new Asylum is about to be erected at Kimmage, near Dublin, for Roman Catholic blind females. The entire range of the buildings, presenting a frontage to the south of 274 feet by 70 feet in depth, comprises, on the ground floor, which is 16 feet in height, a spacious entrance-hall, having reception-room and porter's apartments on each side; class-room for adults and children; ample space for trades, music, recreation, refectory, baths, kitchen offices, schools, and ambulatories. The dormitories, lavatories, infirmary, &c., are situate on the first and second floors, each story being 15 feet in height. The central portion of the composition affords accommodation for 300 inmates. The convent, which is connected with the main building by means of the chapel and central corridors on each floor, contains cells for twelve nuns, with community-room, refectory, reception-room, oratory, and sacristy adjoining the chapel, the choir of which has been arranged to form a private chapel to the convent, which can be shut off from the central building at pleasure. The tower and steeple form a feature at the external angle of the chancel. Ample provision for heating and ventilation has been made by means of heated chambers for the admission of warm air, and flues for conducting the same into all the apartments and passages, with numerous shafts for the extraction of foul air therefrom. The building has been designed in the Gothic style, and is of the plainest and most economical character. The walls are built of rubble masonry, coated with pebble white dashing; blue limestone dressings to all windows and door openings, quoins, strings, bases, &c.; contrasting with the colourless tone of the main body of the structure. The roofs are to be covered with ton slating, having alternate plain and scalloped courses, surmounted by an ornamental crested ridge of fire-clay against the sky line. The architect is Mr. Charles Geoghegan.

The new gallery in the Agricultural Hall of the Dublin Society is in course of erection. Messrs. Courtney & Stephens are contractors for the wrought-iron girders, &c.: Mr. Walter Doolin is contractor for the timber work.

* 16, Charing-cross.

Belfast.—The Ulster Hall, now being erected here, is intended to meet the wants of the town, whose music-hall has become too small to accommodate the numbers who would be found willing to hear a musical entertainment. It will contain a large hall, 138 feet by 63 feet; which, with a gallery, will be capable of seating about 2,000, and an orchestra accommodating 300 performers. The corners of this hall are cut off with a radius of 10 feet. The principal entrance will be in Bedford-street, having a vestibule 30 feet by 28 feet, with waiting-rooms on each side, 25 feet by 17 feet, with a retiring-room to each. From this vestibule three doors lead to a lobby, 12 feet wide, extending across the whole building, giving admittance to the large hall, and containing staircases leading to all the galleries and the minor hall, which is 63 feet by 22 feet, and capable of seating 400 persons. There will be a back entrance in Linen-hall-street. The material employed is red brick ornamented with white, and cut stone for principal entrance. The whole building will cover a space, externally, of 235 feet by 90 feet. The architect is Mr. Barre; the contractors are Messrs. Fulton.

THE CURATORSHIP OF THE SOANE MUSEUM.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ON Monday evening last a special meeting of the Institute was held at the house in Conduit-street (in compliance with a memorial signed by eight Fellows),—

"To consider whether, in the recent appointment made by the Council of the Royal Academy to the curatorship of Sir John Soane's Museum, selection appears to have been made of 'An English architect who may have distinguished himself or gained any academical prize,' in conformity with the terms of the Act of Parliament, or otherwise: and to take such steps as may seem desirable for the interest of the profession."

The President, Mr. C. R. Cockerell, took the chair.

A letter was read from Mr. Bonomi, the gentleman elected by the Council of the Royal Academy, accompanying copies of his testimonials and a portfolio of his architectural studies made in Egypt. Also a letter from Mr. Tidd Pratt, as senior Trustee of the Soane Museum, stating that seeing the intention of the Institute, he thought it right to inform the members that the trustees had refused to receive Mr. Bonomi as the curator until he gave further evidence that the election had been made in accordance with the terms of the Act of Parliament.

A motion for an adjournment moved by Mr. Shout having been lost, the following motion was proposed by Mr. Ashpitel, and seconded by Mr. Horace Jones:—

"That this meeting has every respect for the private character of Mr. Bonomi, and for his high talents as an artist and archæologist, but does not consider there is sufficient evidence that he is qualified for the appointment of curator to Sir John Soane's Museum, under the terms of the Act of Parliament, as "an English architect, who may have distinguished himself, or gained any academical prize."

An amendment on this, for an adjournment, was lost.

An amendment to the following effect, proposed with much feeling by Mr. Owen Jones, who gave evidence of Mr. Bonomi's studies as an architect in Egypt, and of his work, practically, at the Crystal Palace, and Dr. Lee's,—seconded by Mr. T. H. Wyatt, in a very good speech,—was lost by 9 to 25:—

"That this meeting has no hesitation in recognizing Mr. Joseph Bonomi as an English architect;—that it acknowledges the high degree in which he has distinguished himself during a long and honourable life, and congratulates the Royal Academy upon the selection they have made to fill the office of curator to the Soane Museum."

It was then moved by Mr. Godwin, and seconded by Mr. Digby Wyatt, as a further amendment on the original motion:—

"That this meeting does not feel itself called upon at this moment to pronounce an opinion in respect of the appointment of a curator of the Soane Museum."

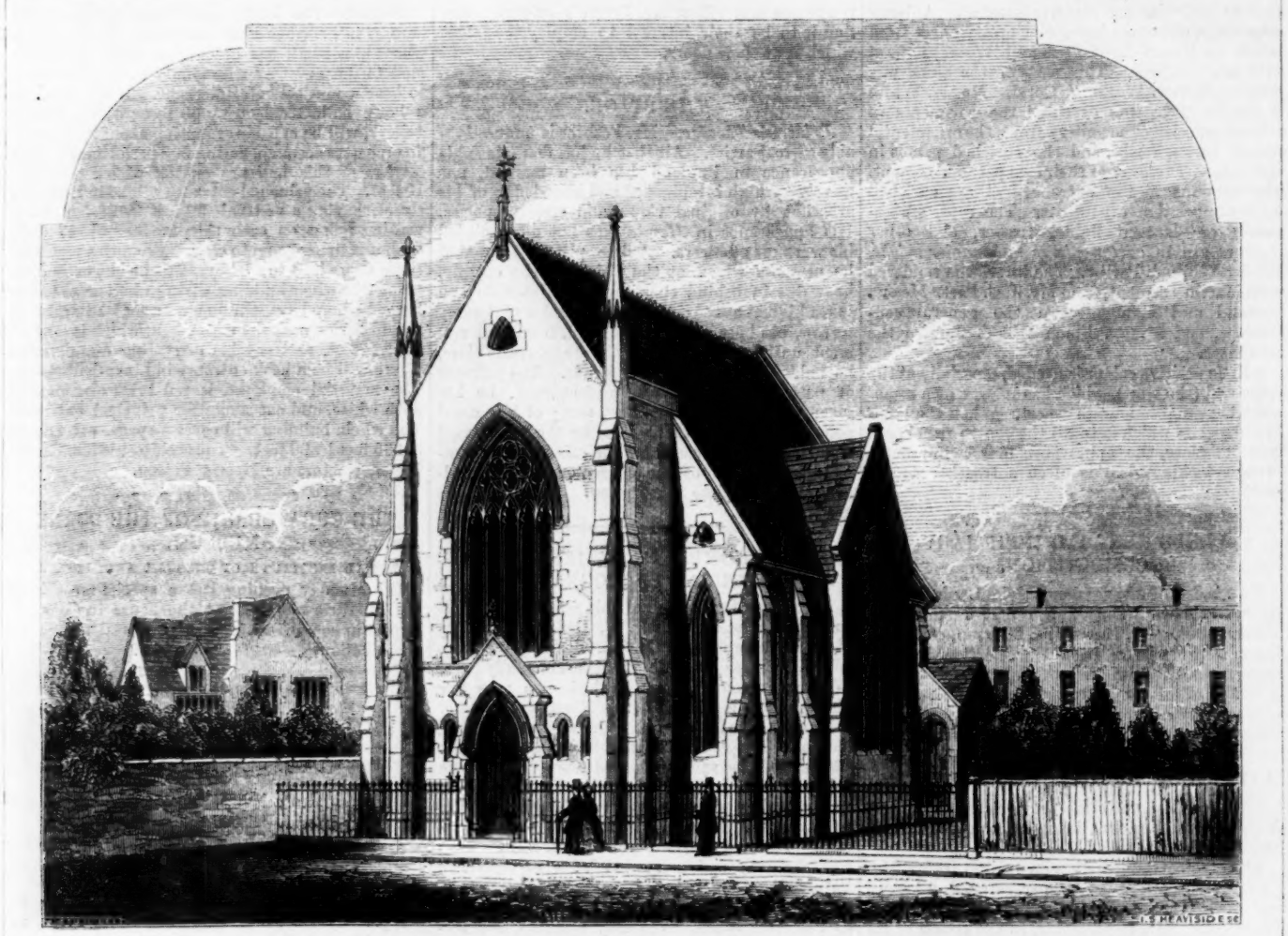
This was lost by 11 to 25.

The original motion was then put and carried by 26 to 10.

Motions to send a copy of the resolution to the Royal Academy and to the trustees of the Soane Museum, and of thanks to the hon. secretaries and to the Chairman, were carried, and closed the proceedings at a late hour.

Professor Donaldson, Mr. Kerr, Mr. H. Newton, Mr. Burges, Mr. Edmeston, Mr. Boulnois, Mr. O. Hansard, Mr. Brandon, and others, also took part in the proceedings.

Notwithstanding the resolution ultimately come to, the trustees will probably find quite sufficient justification of the election made by the Royal Academy, in the difference of opinion that pre-



PROPOSED GERMAN EVANGELICAL CHAPEL, ISLINGTON.—MR. T. W. CONSTANTINE, ARCHITECT.

vailed during the discussion, and the fact that Mr. Bonomi's testimonial was signed by twenty-three Fellows of the Institute, including the President.

PROPOSED GERMAN EVANGELICAL CHURCH, HALTON-STREET, ISLINGTON.

MOST persons are, doubtless, aware that with the extension of the metropolis, a large increase of the German inhabitants has taken place, and that the number is constantly augmenting. To meet the religious wants of these foreigners, churches, in which the services are conducted in their native language, have been erected in the eastern, western, and southern localities of London. No provision, however, has hitherto been made for the northern portion; although, in Islington and its more immediate vicinity, there are upwards of 4,000 German residents.

The want of accommodation for religious worship in the neighbourhood has been seriously felt by them for some time past; and several influential persons amongst them having found, by services conducted in the school-room underneath Islington Chapel, that a congregation would be readily assembled, determined on the erection of a suitable building exclusively for the purpose.

The committee to whom the matter was entrusted requested and received designs from seven architects in respect to the proposed structure.

The drawings were sent in under mottoes, and the one selected, was found, on opening the envelope which was annexed, to have been prepared by Mr. T. W. Constantine, of London. The committee subsequently thought it advisable to have some modification made in the arrangements, which had been adopted in compliance with the original instructions, and thus the building is to be as above delineated. The site is somewhat retired, but it was selected on account of its being central.

The style adopted is the Early Decorated, with lancet windows at the sides; but the amount of cost being strictly limited to a comparatively small sum, ornamentation could be only sparingly employed. The principal material will be brick, with dressings of Box-hill stone. The whole length inside the building is 54 feet; the width, 38 feet 8 inches. About 325 persons can be seated. The roof shows curved-rib principals, supported by moulded corbels, with a ceiling plastered to the rake of rafters and level of collar beam.

There will be one large and one small vestry at the back; the latter being for the use of the minister. Over the vestries a semi-hexagonal apse will be formed, containing a gallery for organ and small choir. The cost is estimated at 1,400*l.*, including warming apparatus and gas-fittings.

PROPOSED INTERNATIONAL EXHIBITION OF 1862.

WE have engraved an interior view of the proposed Exhibition building as at present designed, looking down the nave. As already stated, the height of this nave, which runs parallel with the permanent picture-gallery in the Cromwell-road, is 100 feet, the height of the great transept of the 1851 building. The width is about 75 feet. It will be lighted by a clerestory, 25 feet in height, on each side; the top, unlike previous exhibition buildings, being covered with boarding and felt. The length between the dome-covered hall at each end of it will be about 800 feet. Iron columns support semicircular girders, which carry the roof: other iron framing and columns support galleries on each side. Below the galleries, extensive lower buildings are seen. Much of the effect of the interior will obviously depend on the coloured decoration that may be adopted.

The view of the permanent brick front, next Cromwell-road, has given little satisfaction. To use the mildest terms, it has nothing to recommend it.

The committee who were appointed to advise her Majesty's Commissioners for the Exhibition of 1862, as to the period of art to be represented at the forthcoming Exhibition, came to the following resolutions:—

"1. That the Exhibition ought not to be confined to the works of living artists.

2. That the object of the proposed Exhibition being to illustrate the progress and present condition of Modern Art, it be left to each country to decide under what arrangements, and within what limits, that object can, in its own case, be attained; regard being had to the amount of space that can be devoted to its productions.

3. That, as regards British Art, the above object will be fully attained by confining the Exhibition to the works of artists living at any period within the century preceding the Exhibition, *i.e.* subsequent to the year 1762."

The following is, we understand, the classification likely to be adopted by the commissioners:—

Section 1: *Raw Materials.*—Mining, quarrying, metallurgy, and mineral products; chemical substances and products, and pharmaceutical processes; substances used for food, including wines; animal and vegetable substances used in manufactures.

Section 2: *Machinery and Engineering.*—Railway plant, including locomotive engines and carriages; carriages not connected with rail or tram roads; manufacturing machines and tools; machinery in general as applied to industry; agricultural and horticultural machines and implements; civil engineering, architectural, and building contrivances; military engineering, armour and accoutrements, ordnance, and small arms; naval architecture, ships' tackle; philosophical instruments and processes depending upon their use; photography, and photographic apparatus; horological instruments; musical instruments; surgical instruments and appliances.

Section 3: *Manufactures.*—Cotton, flax, and hemp; silk and velvet; woollen and worsted, including mixed fabrics generally; carpets; woven, spun, felted, and laid fabrics, when shown as specimens of printing or dyeing; tapestry, lace, and embroidery; skins, fur, feathers, and hair; leather, including saddlery and harness; articles of clothing; paper, stationery, printing, and bookbinding; educational works and appliances; furniture and upholstery, including paperhangings and papier-mâché; iron, and general hardware; steel, and cutlery; works in precious metals, and their imitations, and jewellery; glass; pottery; manufactures not included in previous classes.

Section 4: *Fine Arts (Modern).*—Architecture; paintings in oil and water colours, and drawings; sculpture, models, die-sinking, and intaglios; etchings, and engravings.

The Commissioners have, with the sanction of her Majesty's Government, appointed as their secretary Mr. F. R. Sandford, assistant secretary to the Committee of Council on Education.

INTERIOR VIEW OF BUILDING FOR THE PROPOSED INTERNATIONAL EXHIBITION OF 1862.
LOOKING DOWN THE NAVE.
DESIGNED BY CAPTAIN FOWKE, R.E.

THE LABOUR QUESTION.

London.—A meeting of workmen in the building trades, numerously attended, was held in advocacy of the nine-hours movement, on Wednesday evening last, in St. James's Hall, Piccadilly. Mr. Howell, a bricklayer, was called to the chair, and the following resolutions were passed:—

"That in the opinion of this meeting long hours of toil, and the physical exhaustion which they produce, are incompatible with the proper cultivation of the intellectual capabilities of the workman; and that ten hours' labour is no longer necessary on account of the introduction and prevalence of machinery."

"That this meeting is of opinion that a reduction of the hours of labour would greatly benefit the working men, and at the same time would not be injurious to the interests of any other class of the community; and this meeting pledges itself to use all legal means to obtain a maximum day of nine hours at the present rate of wages."

It did not occur to us that any valid arguments were used against the proposition made by some of the masters to pay by the hour. The chairman is reported to have said that this would deprive them of the privilege they now possessed of leaving early on Saturday, and prevent them from having a "recognized day." In reply to this, however, the masters say, under the offered rate of payment the men may leave off at one o'clock on Saturdays, and yet earn the same wages as now; and that as to a recognized day's work, they bind themselves to keep open their works for the ten hours, if only a man and boy remain, while any who wish it may work only nine hours.

Our readers will have heard that rather than adopt the proposal, Mr. Kelk's men, and the men of Messrs. Lucas, Brothers, left work on Saturday last, and it has been supposed that a general strike or lockout is close at hand. We trust, however, that this is not the case. As the offer is becoming better understood, the men are returning, and we are informed that at this moment (Thursday), not a fourth of Mr. Kelk's men are out, and that the exact number out at Messrs. Lucas's is 233. A notice is posted at South Kensington, that "Skilled masons and bricklayers are wanted: wages, 34s. 1½d. per week of 58½ hours."

The operative house painters of London have addressed a memorial to the members of the Central Association of Master Builders, urging them to agree to the nine-hours movement. In this memorial they say, of the object of this movement,—"It is but an effort to advance the prices of our labour ten per cent. Our right to seek to obtain a higher rate of remuneration for that labour is conceded on all hands—even to obtain eleven or twelve hours' pay for the present ten hours' work. Such being the case, we submit we have an equal and just right to obtain the advance now sought for, taking out the equivalent in reduced time. More time we require for our minds as well as for our bodies. Spread over the metropolis, with long and toilsome journeys to perform before we even reach the scene of our day's toil, returning thence at evening to our homes jaded and worn out, we feel we do not ask you to concede too much."

Manchester and Salford.—The painters here have been urging the masters to pay them at the rate of 6d. an hour, and are rejoicing in the success of their endeavour to realize this object. The previous rates were 5½d. per hour, if engaged by the hour; or if by the week (fifty-eight hours), 26s. The demand made was for 6d. per hour, or 29s. per week. The masters, on unanimously resolving to give the advance, informed the public that from the 1st of April a corresponding advance in the charge for painting would be made. At a meeting of the painters to return thanks to the masters, Mr. William Todd, who occupied the chair, said they had a happy and agreeable task before them, and he hoped that their example would prove that the word "strike" might, by a prudent and temperate course of conduct, become an obsolete word in the vocabulary of the working man. Mr. M'Donald regarded the success with which they had met as unparalleled in the history of any agitation for advanced wages, and showed the propriety of resorting to persuasion rather than relying upon strikes and paid agitators.—— The strike of the Manchester bricklayers has also terminated. They demanded to cease work at a quarter before five o'clock during the two months of mid-winter, December and January, and at a quarter-past five in November and February. A conference having recently taken place, the men have resumed work, with the understanding that the masters shall make no reduction in wages without giving the men three months' notice, nor the men demand any increase or alteration of time, without giving similar notice. The building trade is now expected to become brisk in Manchester, as empty dwellings are scarce, and capital is in less demand for manufacturing purposes.

Newcastle and Gateshead.—The joiners and carpenters have held a meeting with the view of co-operating with their trade in London, for the shortening of the hours of labour from ten and a-half to nine hours per diem. As it was anticipated that so large a concession would not be made by the masters, the men contented themselves for the present with asking for the reduction of half an hour from their daily labour, entering into combination for the purpose of obtaining the greater privilege at a future time.

Edinburgh.—The joiners have agreed, without a dissenting voice, to accede to the wishes of the employers, and resume work on the old terms. They had resolved to send a letter to Mr. Watherstone, chairman of the Association of Employers, intimating their willingness to resume work on the ten-hours system; so that the strike, so far as the joiners are concerned, is now at an end. The masons do not at present seem disposed to follow the example of the joiners, and the strike among them is more general, owing to the strength of their union.

Jersey.—The blacksmiths' strike for a reduction of time of work from eleven hours to ten, as in Guernsey, still continues: two more masters, or five in all, according to the *Jersey Times*, have acceded to the terms of the men, but the majority resist the demand.

Sir,—It is earnestly to be hoped that both employers and men will gravely consider the very serious consequences arising from the interruption of business caused by a strike, and remember that such disputes cause loss to all,—loss to the masters, loss and distress to the workmen and their families, and loss to the nation at large. Hundreds of the families of honest and industrious men are still suffering from the disastrous consequences of the last strike; and the Registrar-General's books will show to what an extent the wives and children of those engaged in the building trades have suffered from the hardship of the last strike. The past winter has been a severe one; and many men, stonemasons, bricklayers, plasterers, &c., have been for a long period out of employment. Numbers of these men, particularly those with families, are in a sad condition to commence a strike. From the chief manufacturing districts, particularly those connected with the supply and manufacture of iron and other metals, the accounts are gloomy. In many departments the new American tariff will stop the exportation to that country of British goods. The uncertainty of the supply of raw materials, which affects some millions in the midland counties, is causing uneasiness. News of famine has come from India, which may be the cause of increased national expenditure, and prevent the commencement or completion of Government works. Bricks are at present at a high price, and there are other matters looming which cause thinking men to inquire if this be a favourable time for labour to ask for increased privileges. The chief point of the matter of dispute is, that the men consider it desirable the hours of labour should be reduced from ten to nine hours each day; nine hours to be paid for at the same rate as ten at the present time. By the power of association, men anxious to do so are to be prevented from working overtime; and the most skilled workmen are to be put on exactly the same level with the most slow and useless. This arrangement would be the means of preventing the right development of the highest qualities of the workmen, and curb the laudable ambition which prompts men to better their condition. On the 7th of March, of the present year, the five branches of the building trade addressed memorials to the Master Builders' Association, respectfully urging upon that body the necessity of reducing the hours of labour, and asking for an answer on or before the 5th of April.

On the 16th of March, some leading builders posted a notice on their various works and jobs, as you have remarked, stating that, on and after March 23rd, they should pay their workmen by the hour instead of, as at present, by the day. The change intended by the said master builders was to pay 7d. per hour to skilled artisans, an increase on the present rate. "This announcement," says Mr. Potter, "caused great excitement to their workmen, who met together and appointed deputations to wait on and respectfully request their employers to withdraw their proposed change."

With the exception of Mr. Kelk the employers proposed not to press the change. Mr. Kelk, on the contrary, expressed his determination to adhere to his new conditions. The consequence was that, on Friday last, nearly 400 men were discharged or locked out from that time for refusing to accept the terms. Afterwards Messrs. Lucas expressed their determination to enforce payment by the hour. To this also their men objected, and on Saturday they were paid off.

It is urged that, if the building operatives had the power to restrict every one of their order to nine or ten hours' daily labour, the change would be more acceptable than at present; "but," says the secretary, "as they possess no power of the kind; and knowing, from bitter experience, that there are always and everywhere to be found men in whom self entirely predominates, to the utter exclusion of every noble feeling or aspiration; and as the few often reduce—through necessity or selfishness—the wages of the entire body of operatives; so, under the proposed alterations of the master builders, would the few unprincipled men ultimately injure the whole of their order by extending their hours of labour."

Although these sentences at first sound well, they will not bear that matter-of-fact and business-like scrutiny by which the subject must be examined: much as many wish to the contrary, the matter will be worked by those laws of supply and demand which regulate the prices of labour and materials, and will be made to assume a pound, shillings, and pence view. Take, for instance, the bricklayers. In consequence of the proposed extensive works for the Great Exhibition, the vast amount of labour which is likely to be required in connection with City underground railways, and the sewers for the main drainage; such is likely to be the demand for bricklayers that they will probably be justified in asking for an advance of wages; and doubtless the competition amongst the employers would cause this to be acceded to, if put in a fair and just way. In consequence of the demand, the price of bricks has risen. Brickmakers' wages have increased; and, by the same process, the wages of bricklayers will rise with the demand for labour.

A strike can only do harm to all.

A WORKER.

PAYMENT BY THE HOUR.

SIR,—The suicidal policy adopted by the men out on strike in London so astonishes me, that I cannot refrain from troubling you with a few remarks touching the proposed system of paying by the hour.

This measure is one I have often wondered at the London masters not adopting before, and during the last strike. My answer to all my friends who mentioned the subject was, "Pay by the hour: there can be no dispute about what period of time constitutes an hour; but so long as you pay by the day, disputes will arise as to how many hours and minutes shall constitute a day. Pay by the hour, and you will then reduce all differences between employer and employed to a mere wages question, to which the simple and only legitimate rule of supply and demand will more readily apply than any arbitrary enactment, and these differences be capable of more speedy settlement, than when shackled by other questions and other purposes."

As an employer, although comparatively a small one, I can give testimony to the working of the hour system, having for some years past adopted it, and except a little striking and suspicious regard at the commencement, it has worked exceedingly well, and I believe there is not a man in my employ who would rather be paid by the day. In fact, the little difficulties at the commencement arose not from the idea of any injustice that could be found lurking under the surface, but from the simple fact that it was an alteration of old customs, an innovation upon tradition, or a something their fathers did not tell them of; but when the objections raised by the men and the tendencies of the measure were examined by the light of reason, there were few dissensions, it being evident that no advantage could be derived by either, save giving to the master a straightforward and easy method of assessing the labour of his men, and to both, that most satisfactory and devoutly to be wished assurance, that all differences and quarrel and heartburnings arising out of time question were for ever at an end.

As to the objections raised by Mr. Potter and his colleagues, against one only do I think it worth while to speak, and that is the likelihood of trade being injured by "selfish individuals habitually making long days." My experience on this point is this, that I have never had a single man who wished to work longer than the others, and that is the old time which was observed before the hour measure, and which has always seemed to be tacitly regarded as the daily limit.

I could go on at much greater length with arguments, but your space is valuable, and your correspondents willing, and more able: I will, therefore, conclude by saying that I believe, if the men, as a body, *do* turn out against the hour, it will be at the instigation of the demagogues, whose vocation, please observe, would be in a great measure departed by its adoption.

Warwick. CONTRACTOR.

CHURCH-BUILDING NEWS.

Stowmarket.—The preparations for erecting a new Independent Chapel in this town have been begun. Three houses in Ipswich-street have been pulled down: these and the site of the old chapel will give ground for the new building, which is to be in the Gothic style of the fourteenth century, and carried up with Kentish rag and faced with Caen stone: when completed it is to seat 1,200 persons. The architect is Mr. F. Barnes, Ipswich. Mr. Smith, Ipswich, has the contract for the erection, at 3,333*l.*; but the cost of the whole, when completed, is estimated to be nearly 5,000*l.*

Quendon.—Quendon church has been re-opened for divine service, after being restored, with the addition of a south aisle. In the restoration the plain sloping roof, without clerestory, has been adopted. The bell-cot is plain. A feature in the church is the Norman pillars. On those in the south side, which were built in with the wall, were discovered many dates and carvings of names in old English. The new west window, in stained glass, is a memorial by Messrs. Lavers & Barraud. There are others by the same artists. The nave is laid with Peache's red terro-metallic tiles, with blue and white borders. The chancel has been restored by the rector, who has also been at the cost of building a small vestry-room to the north of the chancel. The chancel is laid with Minton's encaustic tiling. The contract for this restoration was taken by Mr. O. Crane, of Newport. Mr. George Perry, of Bishop Stortford, was the architect employed.

Cleydon.—The parish church here, which has been to a considerable extent rebuilt, has been re-opened for Divine service. Mr. Wilson, of Wardington, was the builder employed; and Mr. Kimberley, of Banbury, erected the pulpit and reredos; whilst the tracery of the windows and gables, and the crosses and sedilia, were the work of Mr. A. Claridge, of Banbury. Mr. White, of London, was the architect.

Bramcote (Notts).—The chief stone of a new parish church has been laid in this village. The stone forms a part of one of the tower pillars, and on it so as to be read will be cut an inscription commemorative of the ceremonial. The church is in the Decorated style of Gothic architecture, and consists of nave, aisle chancel, and vestry, having a tower, and spire, about 130 feet high, open to the church inside, and porch on the south side. The stone used is Chevin for the window-tracing and principal dressings, Stanton stone for inside ashlar columns, &c., with Caen stone for pulpit, font, and inside carvings. The roof is an open-timbered one. The chancel stalls and seating generally are in deal, stained and varnished. Mr. J. Johnson, of London, is the architect. The whole of the works have been placed, without competition, in the hands of Mr. J. Firn and Mr. W. Clifton.

Stroud.—The parish church having long been out of repair, and in an unwholesome condition, it has been resolved to re-build it, on plans by Mr. Bland, of Birmingham, architect. The new church, retaining the old tower and spire, is estimated to cost 5,000*l.*; and of this 4,000*l.* have been promised in subscriptions. A vestry meeting has (almost unanimously) adopted the designs, empowered the churchwardens to apply to the Consistory Court for a faculty to rebuild, and appointed a committee to carry out the new arrangements. The selected design was the result of a competition (advertised in the *Builder*), in which upwards of thirty designs were sent in. Of these, three,—those of Mr. Bland, Mr. Wilson of Bath, and Messrs. Medland & Maberley, of Gloucester, were first selected, and finally the premium of 20*l.* was awarded to the first of these. Mr. Scott was consulted; but, as he advised the removal of the tower and spire, his design was not adopted; it being thought desirable to retain these. A modification of Mr. Bland's design was therefore finally adopted. The edifice, according to this design, will accommodate 1,150 persons.

Plympton.—A Dissenting Chapel is about to be erected in this pretty little village, which is situate a few miles out of Plymouth. The style is Romanesque, and was selected in competition. Tenders were advertised for, and that sent in by Mr. G. Stevens, of Newton, was the lowest. The architect is Mr. Edward Appleton, of Torquay. The materials will be local limestone, with dressings of white brick from Lord Morley's fire-brick works at Lee Moor, in the neighbourhood. The colour is a warm buff. At these works, our local correspondent adds, various forms and moulded bricks are produced, the price for the plain shape being 3*l.* per 1,000 at the works.

Dawlish (South Devon).—A new Wesleyan chapel is in course of erection in this place, from the design of Mr. Edward Appleton, of Torquay, architect. The style is Early English. The form of the ground necessitated the chapel being in the shape of the letter ⌊ reversed (⌐). The pulpit is placed in the angle at the junction of the arms. The roof will be open, and stained. Light is for the most part obtained at the ends, to relieve the blankness of the side walls consequent upon the absence of windows. Arcades are introduced. Mr. T. Richardson, of Totnes, is the builder.

Totnes.—The Wesleyans of this town are about to erect a new chapel, adjoining the river Dart, near the bridge. The side wall of the chapel will abut on the creek of the river. The foundation will be constructed with blue lias concrete, and masonry in blue lias mortar. Mr. W. A. Goss, of Torquay, is the builder. The style is Lancet, and the roof will be in one span. To break it up the front of the chapel is made apsidal, with gables over each bay. The sides are also proposed to be similarly treated. The materials are local limestone, with dressings of brickwork, in colours. The roof will be half open, and trussed with iron tension rods and struts. The architect is Mr. E. Appleton, of Torquay.

Chester.—The Marquis of Westminster having contributed 3,000*l.* towards a fund (amounting to upwards of 5,000*l.*) raised by subscriptions for restoring St. John's Church, the interior renovation has commenced, and some ancient paintings have been discovered. One of these shows traces of a fine painting, representing a large figure holding in his hand a book, on which rests a fawn carrying a flag; while in the background is a forest in which stags are roaming about, and in one corner is the representation of a massive building with towers.

Stockport.—The foundation stone of a new Roman Catholic church has been laid at Stockport. The dimensions are as follow:—Extreme length, 105 feet; width of nave and aisles, 70 feet; height from floor to ridge, 72 feet; from floor to panelled ceiling in the centre, 60 feet. The church will consist of a nave with an apsidal termination at the chancel or altar end. The aisles will be separated from the nave by an arcade of circular stone piers and chamfered arches. There will be a sacristy with separate entrance and chamber over, and an inner vestry for the clergy. There is an organ gallery at the west end of the nave; and a tower with a spire surmounted by a gilt orb and cross, rising to the height of 200 feet, complete the design. The style chosen is of English type, and the leading idea which the architect (Mr. M. E. Hadfield, of Sheffield) has kept in view is so to arrange the church that the greatest possible amount of space shall be given up for the use of the congregation, with facility for seeing and hearing, and abundance of light. The contractors are Messrs. Robinson & Son, of Hyde.

Bradford (Yorkshire).—The Church of St. Mary, Laister Dyke, one of the ten it is proposed to build in five years, has been consecrated by the Bishop of Ripon. The church is situate at a short distance from the Laister Dyke toll-bar. It is built from the designs of Messrs. Mallinson & Healey, architects. The style is Decorated Gothic. The church consists of nave and north and south aisles. The chancel and vestry are at the north, and there is a tower at the south-west corner of the nave. There are about 400 sittings. The cost is 2,600*l.* The contractors were;—Masons, Messrs. Birkby & Holdsworth; joiner, Mr. A. Neill; plumber, Mr. Reece; slaters, Messrs. J. Hill & Sons; painter, Mr. Edward Haley; and plasterers, Messrs. Brayshaw & Muff.——The foundation stone of a new Methodist Connection Chapel has been laid at Bradford. The new building will cost about 2,000*l.*, and will give 500 sittings, and afford accommodation for 300 children. Mr. S. Jackson, of Bradford, is the architect, and the contractors are Messrs. J. H. W. Beanland, of Bradford.

Stockton.—The foundation stone of St. Andrew's United Presbyterian Church has been laid on a site chosen in Castle Field. The style of the building will be Gothic. The edifice will contain 400 sittings. The architect is Mr. D. McAndrew, of Aberdeen; and the contractors are Messrs. Wade, bricklayers, and S. Butterwick, joiner, of South Stockton; and Mr. William Bulmer, mason, of Stockton. The building is to cost nearly 800*l.*, towards which sum about one-half has been raised.

Sheffield.—The new cemetery for the township of Brightside Bierlow has been consecrated by the Archbishop of York, attended by many of the clergy of the town. There are two chapels—one for the Church, and the other for Dissenters—separated by an archway, over which is erected a tower and spire, rising to a height of 120 feet. There are also a superintendent's house and sexton's lodge. The style of the chapels is Geometrical Gothic. The architects were Messrs. Flockton & Son. The chapels are each 70 feet by 26 feet, and have on one side of the entrance a vestry for the clergyman, and on the other a waiting or private room, with other conveniences. The double entrance-doors of each chapel lead into an open space, available as standing room for those not immediately interested in the funeral that may be going on. The total area of ground enclosed is about 27 acres, and of this nearly 17 acres, including roads—have been consecrated. The main feature of the ground is a central road, passing under the tower to the top of the cemetery, a distance of 960 feet. It is 21 feet wide, and there are smaller parallel roads on each side, connected by two cross footpaths; the land being thus divided, as far as possible, into regular parallelograms. Under each of the roads is a drain 11 feet below the surface.

STAINED GLASS.

Rochester Cathedral.—Three stained glass memorial windows, completing the set of six in the north transept of this cathedral, to the momory of the late Ven. Archdeacon King, have been fixed in their places. These memorial windows have all been designed and executed by Messrs. Clayton & Bell, of London. The centre window of the upper trio represents St. Michael subduing the dragon. The left-hand window contains the full-length figure of St. Raphael, holding in his left hand the crozier, and in the right the fish. The subject of the remaining window is the archangel Gabriel.

The Priory Church, Bridlington.—A large east window of coloured glass for the Priory Church of St. Mary, Bridlington, has just been completed and presented by T. C. Clayton, esq., of Wetherby Grange. The design of this window was by Mr. Scott; the stonework by Messrs. Beanlands, Bradford; and the glass by Mr. Wailes, of Newcastle-upon-Tyne. The window belongs to the Decorated style, and consists of seven lights distributed into two groups of three each (with their appropriate Gothic heading, and tracery containing three trefoils in as many circles), separated from one another by the seventh or central light. The height of the window, from cill to apex, is 39 feet 6 inches, and the width of the opening between the jambs is 19 feet 6 inches. At the base, a narrow band of old English lettering, in amber, sets forth the name and style of the donor, with a Latin inscription commemorative of those to whose memory the window was erected. The centre panel of the window commences with Jesse, the father of David, at its base, and terminates with the infant Jesus sitting in the lap of His virgin mother. In all there are thirty figures.

St. Lawrence's, Ramsgate.—The new west window of this church has been finished. It is the gift of T. N. Harris, esq., of Pegwell, whose kindness and liberality towards the poor are said to have gained for him the affectionate regard of all. A table has been erected in the church to the memory of this gentleman's father, the late General Sir Noel Harris.

SCHOOL-BUILDING NEWS.

Bridport.—The school-rooms attached to the Bridport Chapel having been found very small and inconvenient, a new school has been erected in proximity to the chapel, on the east side. To make room it was necessary to pull down four cottages. The new school is a long room, built of brick, with a high-pitched open-timbered roof, the principals resting on moulded stone corbels. Light is obtained from a window at each end, and a skylight. Each of the windows is divided into three lights by mullions of stone with carved heads. A border of blue glass runs round each light. The room will accommodate about 200 children, and is intended for use also for week-night services.

Belgrave (Leicester).—The foundation stone of the New National Schools at Belgrave has been

laid. The building, which will include a master's house, is in the Gothic style. Mr. W. J. Gillett, of Leicester, is the architect, and Messrs. Osborn, Brothers, Leicester, are the builders.

Liverpool.—Of the sum of 9,000*l.* for the purpose of erecting Wesleyan Methodist schools, to accommodate 1,300 children, in connection with the Brunswick and Great Homer-street Chapel, 4,500*l.* have been collected, and 2,600*l.* more are expected by Government grants. The fund is also being increased by fancy bazaars.

PROVINCIAL NEWS.

Reigate.—The erection of the public hall building is to be immediately commenced, and the removal of the buildings on the site has been already begun. The site is in a central position. Mr. Carruthers, the contractor, recently built the new Church at Reigate, near the Railway station. About 600*l.* are required to complete the capital of 4,000*l.* for the public hall.

Brighton.—It has been determined to carry out some extensive alterations at the Pavilion, such as the conversion of the South Lobby and small rooms over the Ladies' Waiting-room into galleries suitable for the exhibition of pictures, or for similar purposes. The cost is estimated at 500*l.*

Guernsey.—A new clock-turret has been erected at St. Sampson's, Guernsey. It stands on a weigh-bridge, and is on the south side of the harbour. It has two dials, and a bell that strikes the hours. This erection is of great use to the district. A part of the road leading to the Vale Castle (on the north side of the harbour) is being levelled. A new weigh-bridge is being built on the north side of the harbour.

Worcester.—The architect of the additions at Worcester Asylum says that the amount of estimate is 5,200*l.*, instead of 2,500*l.*, as stated.

Halifax.—The ceremony of laying the corner stone of the Victoria Tower of the Halifax New Townhall is fixed to take place on Easter Tuesday by the mayor.

CORN EXCHANGES.

Norwich.—The shareholders of the new Corn Exchange Company, after opening the tenders, given in the *Builder* of the 23rd instant, adjourned for the purpose of seeing what alterations could be made to reduce the cost. The estimate for an entirely new building, to which they had agreed, is said by the *Norfolk Chronicle* to have been about 6,185*l.*

Oxford.—Those interested in the corn trade here also are dissatisfied with their present exchange accommodation, and a meeting has been held for the purpose of selecting a suitable site for a new Corn Exchange and considering certain proposals submitted on the occasion. Resolutions were passed to the effect that steps be taken to obtain a more suitable exchange than the present one, and that the whole question be referred to a committee, to receive proposals and terms, and report thereon to another public meeting. A committee was accordingly appointed, who forthwith resolved to advertise for sites. One of the proposals made to the meeting was on the part of the corporation, who are willing to erect a building suitable for various purposes, and for a Corn Exchange inclusive, for the use of which as such, a rental would be charged. The rental, it was incidentally stated, might amount to about 150*l.*, and the accommodation would be for 500 persons. In reference to this proposal it was also incidentally stated that the Didcot Corn Exchange was 75 feet by 45 feet, superficial feet 3,375; Banbury, 84 by 54, superficial 4,536, accommodating 350 persons; Birmingham, 200 by 37, superficial 7,400, accommodating 900 persons; Wallingford, 100 by 30, superficial 3,000, accommodating 400 persons; Newbury 160 by 50, superficial 8,000, accommodating 1,000 persons.

Wolverhampton.—The directors of the local Corn Exchange Company advertise for contracts for the following alterations in the present building:—To fix skylights in that portion of the roof now occupied by the dome, to remove the pillars by which it is supported, to erect an orchestra over the ironmasters' room, and galleries on the other three sides of the hall, to introduce a large plate-glass window in the archway over the front entrance, and to replace the steps with a porch. These improvements are designed by Mr. E. Banks, of this town, architect.

Cirencester.—A meeting of the new corn exchange committee was recently held, to consider the objections to the proposed site in Cricklade-street; and it was agreed to suspend proceedings to allow the advocates of the Market-place site to mature their plans. The latter immediately formed a new company, and have brought out a scheme which will probably be speedily carried out. It is to be hoped the result will not be those "two stools" between which other projects of a similar kind have fallen through. The site selected in the present instance is that usually called the Booth Hall, with additional space behind. The requisite buildings are estimated to cost 1,500*l.*, the expense of purchasing the site being avoided, as Earl Bathurst is willing to grant a lease for 500 years, at a rent of 58*l.* a year. The capital of the new company is fixed at 3,000*l.*, in 10*l.* shares.

Ross.—The chief stone of the Corn Exchange for Ross has been laid with freemasonic ceremonial. The company is limited, with a capital of 2,500*l.*, in 2*l.* 10s. shares. As soon as a sufficient number of shares had been taken to warrant the step, designs were advertised for, and premiums of 50*l.* and 20*l.* offered for the best and second best. About twenty designs were sent in, and the 50*l.* was awarded to Mr. J. Nicholson, of Hereford, and 20*l.* to Mr. Edward Purchas, of Ross. The ground plan of the building comprises a reading-room, hall, and vestibule, poultry market, and waiting-room. On the upper floor is a library, class-room, auctioneer's room, and corn exchange and assembly-room, 70 feet by 38 feet. Each floor is provided with suitable conveniences. The exchange-keeper's rooms are arranged in the mezzanine story. The principal façade will be executed in Box-hill stone, Italian in design, with a Doric order surmounted by an Ionic. The whole frontage is about 65 feet, of which 50 feet is given to the order, and the remaining 15 feet to a recessed driving way, with room over; and it is hoped that this receding portion will eventually be crowned with a belvedere or campanile. The tender of Messrs. Pearson & Son, of Ross, to execute the work for 2,800*l.* was accepted by the committee, and they have already completed a considerable portion of the underground work.

MONUMENTAL.

MESSRS. MOWLEM & CO., of Pimlico, have set to work a number of masons and labourers, at the south-east corner of Trafalgar-square, and immediately facing Northumberland House, for the purpose of erecting a statue to the late lamented General Havelock. The statue is to be of full-length (in bronze), similar to that of General Napier at the west end of the square, and executed by Mr. Behnes, of Regent's-park, who designed that of Sir Robert Peel, in Cheapside. The pedestal will be of blocks of Dartmoor granite, and the whole weight of the structure, when completed, will be between 40 and 50 tons. The workmen have had much trouble in getting at solid ground for the purpose of laying the foundation for so heavy a mass. Messrs. Mowlem are also engaged in fixing a statue to the same general, and by the same artist, in Sunderland. It is expected that leave will soon be obtained for the erection of a statue to General Outram, close by the side of the one to Havelock.

Mr. William Brodie, R.S.A., says the *Scotsman*, has completed a mural monument for the parish church of Rosneath, intended to commemorate the services of the late pastor, the Rev. Robert Story. It is to be placed inside the church, near the pulpit, and will be relieved from the wall by means of corbels. The monument consists of a pointed Gothic arch, with an arcaded base, and in form resembles a cathedral stall. Marble and stone (the latter from Craigsland Quarry, Ayrshire) are the materials used.——The same paper states that in the Dean Cemetery, which now shows a large preponderance of artistic monuments, a memorial in granite has recently been erected. This structure, which has been nearly two years in execution, has been erected to the late Mr. John Aitkin, of Australia, by his widow. It is a mural monument, and is about 14 feet high and 10 feet broad—projecting from the wall about 3 feet. It is principally in red Peterhead granite, polished, and consists of a base, columns, panels, and entablature. The capitals of the pillars and the tops of the panels are carved in the red granite, which is greatly more difficult to cut than the grey. The artist, however, adds the *Scotsman*, has been very successful: the carvings are spirited without apparent elaboration. A border of black whinstone, from Carlingnose Quarry, Queensferry, runs round the monument, and gives it an appropriate finish. This monument was designed and erected by Mr. Thomas M'Ewen, of Edinburgh, sculptor, and the granite was executed from his models, at the works of Mr. William Keith, Aberdeen.

The Legislature of Tasmania have voted 1,000*l.* for a monument to Sir John Franklin, in connection, says the *Australian Gazette*, with the improvements now being carried out on the fine site, in Hobart Town, on which stood the viceregal residence at the time the distinguished Arctic navigator was lieutenant-governor of the colony.

GOVERNMENT COMMITTEE: STONE OF THE HOUSES OF PARLIAMENT.

THE list that has been everywhere published, of the Committee appointed by the Chief Commissioner of her Majesty's Works, is incorrect. The Committee consists of the following gentlemen:—Architects and Engineers.—Mr. Tite, M.P.; Mr. Sydney Smirke, R.A.; Mr. Scott, R.A.; Mr. G. R. Burnell, Mr. Digby Wyatt, Mr. Hawksley, Mr. E. M. Barry, and Mr. Godwin. Chemists.—Mr. Hofmann, Mr. Ansted, Mr. Frankland, and Mr. Abel. Geologists.—Sir R. Murchison, Mr. Tennant, and Mr. C. H. Smith.

The Committee met for the first time on Saturday, the 23rd inst., in Richmond-terrace, when Mr. Tite was appointed chairman, and the mode of proceeding was arranged. A day was fixed to meet at the Houses of Parliament, to make a thorough examination of the building for themselves. The points referred to the Committee include the recommendation of a building-stone to be used in future public buildings in London.

Mr. Alfred Bonham Carter acts as secretary of the Committee.

ST. IVES, HUNTINGDONSHIRE.

THE attention we drew to this place a short time since, relative to its wretched sanitary condition, has been productive of a good result.

The inhabitants, feeling the force of our remarks, and that they were not fairly treated by the powers that be, have memorialized the Home Secretary to interfere in their behalf, as he is authorized to do so by the Local Improvement Act. After setting forth their grievances and the apathy of the commissioners in carrying out any measures tending to improve the public health, they state that a retired butcher and lighterman, and now a poor-rate collector, has been appointed surveyor at an annual salary of 15*l.* They ask the Home Secretary not to confirm such an improper appointment, and not to approve of any such miserable remuneration, which has been purposely fixed so low as to prevent any qualified person from applying for the post.

They also ask for a Government inspector to be sent down to inquire and report upon the premises. This is a proper course of action, and we should think that the Home Secretary will readily accede to such a respectful and reasonable request.

THE DESCENDANTS OF EMINENT BRITISH WORTHIES.

GLANCING, the other day, over the lives of our most distinguished English celebrities, we were struck with the suddenness with which the race of such men has come to an end. The subject is one which is worthy of more careful inquiry than it has yet met with, although the circumstance has before been adverted to. Let us, however, in the meantime, merely touch this curious subject, in the hope that it may lead others a little further into a most interesting course of inquiry.

We may put Shakspeare at the head of the list. His eldest daughter, Susanna, was married at Stratford, June 5th, 1607, to John Hall. There was only one child by this marriage. The youngest daughter was married to Thomas Quiney. At Shakespeare's death, in 1616, the family consisted of his wife, his daughter Susanna, and her husband, Dr. Hall; Judith and Thomas Quiney; and Elizabeth Hall, a granddaughter. Judith Quiney had several children, who were all dead in 1639. The poet's granddaughter, Elizabeth Hall, was married in 1626, to Thomas Nash, who died in 1647 without issue; and, secondly, in 1649, to John Barnard, of Abington, county of Northampton, by whom she had no family, and died in 1670. Thus, in fifty-four years Shakspeare's descendants, both male and female, came to an end.*

Milton, the poet, left female descendants only, whose family are believed long since to have ceased to exist. A poor woman, named Clarke, some years since claimed to be the last descendant from John Milton.

* The persons who now claim to be the poet's descendants belong to the Hart family, into which Joan, Shakspeare's sister, married.

The male line of Sir Christopher Wren was speedily extinguished, and we some time since stated the belief that the female line had also ceased: a correspondent, however, mentioned that, at the time he wrote (a few years ago), an old lady, descended from the great architect, was still living.

Sir Joshua Reynolds, Cowper the poet, Pope, Locke, Seldon, Thomas Campbell, Oliver Goldsmith, Wilkie, Dean Swift, Sir Isaac Newton, Hogarth, Turner the landscape painter, Sir Humphrey Davy, Edmund Burke, Pitt,—have left no descendants.

Robert Stephenson ended the line of his father, George.

Notwithstanding all the anxiety of Sir Walter Scott to establish a family inheritance, his direct race has perished, and those of but slight relationship inherit his land and title.

We believe that with the sons of Robert Burns the family of the national poet of Scotland will expire.

Lord Byron is only represented on the female side.

It would be easy to prolong this list to a great extent. We have not omitted to look at the reasons and circumstances which may be supposed to argue against the facts to which we allude; but we believe that a more careful and extensive research would show that, in nine cases out of ten, the race of those of mighty intellect has, with remarkable suddenness, come to an end. A. B.

FREDERICKSBERG PALACE, DENMARK.

WE understand that Mr. E. Falkener, whose work, "Dædalus," is fresh in the recollection of our readers, has just been honoured by the presentation of the patent and decoration of a Knight Commander of the Dannebrog, by the King of Denmark. This order is one of the most ancient in Europe, having been founded by Waldemar, in 1219. Our readers will remember that the Fredericksberg Palace was destroyed by fire in 1859.* After endeavouring to collect plans and records of the building, the Danish Government fortunately called to mind that eighteen years ago an English gentleman of the name of Falkener had, during a stay of several days, made a series of drawings, comprising the four façades, the interior of the Ritter Saal, the chapel, and other portions. On application being made for permission to copy these drawings, Mr. Falkener immediately offered the originals for the acceptance of his Majesty, in graceful acknowledgment of which the above-mentioned honour has been conferred upon our countryman. The fact that the Danish Government were dependent upon this accidental source for the architectural records of so important a national edifice as the Fredericksberg Slot, shows the desirability of collecting and preserving authentic drawings and records of our public buildings and monuments.

THE DATE OF AVIGNON CATHEDRAL.

IT was not my intention to have entered into any discussion concerning the probable date of Avignon cathedral; but, since Mr. Fergusson again referred to it, on the 18th instant, at the Institute, and declared his opinion that the whole building, though vaulted with the pointed arch, might be ascribed to the eighth or ninth century, I feel that a few words are necessary. I am no speaker, or should then and there have spoken. On this account may I venture to ask your publication of these remarks? The church itself has been much altered and modernized internally; but the nave, dome, and choir, from a short height above the ground, remain much in their original state, though whitewashed and in part (the dome) painted with frescoes. The disposition of the parts, the mouldings, the carved ornaments, the construction, all belong to a well-defined and distinct period of architecture,—the Romanesque, of the eleventh and twelfth century, as practised in the south and centre of France. If the interior and exterior (which correspond in style and are clearly of the same date, including the tower and central dome,) were built in the eighth or ninth century, then so were, probably, the churches of St. Gilles and Nimes (both plain pointed vaults), Moissac, St. Trophime, Arles; the abbey church of Montmajour; St. Sernin, at Toulouse; the cathedrals of Valence and Angoulême, and a host of others too numerous and well known to need cataloguing. Now, as the dates of several, if not all, of these buildings are pretty well known and agreed to by all antiquaries in France and Germany, the cathedral of Avignon, being of the same class, bears in itself the testimony of its date, approximately at least.

We have now to speak of the portal, which is distinct in style from the building itself, though the date of its erection may be, and is, quite open to dispute. That style is also distinctly marked, viz.,—very debased Roman. The cornice and architrave—there is no frieze—rest on angle columns, of the Composite order, with proper abacus-necking and base. The cornice consists of Roman mouldings and ornament, fret, leaf, and ovolo: the archway is enclosed with the ovolo moulding. The left impost consists of two Roman mouldings, one of which is the ovolo *reversed*. The right impost consists of four mouldings, ornamented with the guilloche, fret leaf, and dentil. The archivolt of the side entrance has the cyma reversa and three facias, resting on an impost formed by the cavetto and the cyma recta. The pediment is pierced by an oculus, with a torus moulding round it, and is destitute of a cornice. Now, the infusion of Roman architecture in the styles of the eleventh and twelfth centuries is too well known to need comment, and it is especially marked in the south of France; but though the general form is frequently retained, the mouldings, especially the cymas recta and reversa, are of a peculiar character, and are easily distinguishable: to use correct Roman contours in the mouldings would destroy the character of the style in this district; and yet these Roman contours are seen in the Avignon porch. This fact, and the absence of any purely Romanesque ornament on the moulding, the ovolo moulding *reversed*, as before stated, the difference between the imposts of the central arch, the masonry (which is of the usual Romanesque nature), the darker colour of many portions of the ornamental parts, the absence of a cornice to the pediment, and the oculus, which is a common Romanesque one, combined with the fact of the porch being built against a buttress, all induced me to consider it as of later date even than the cathedral itself, and possibly to be formed of some old materials, added to and adapted for the purpose, I expect, of shelter against the high winds and clouds of dust on this rocky storm-beaten height; for the north side, whence the dreaded mistral mainly blows, has no opening; moreover, there is a small buttress against the south angle of the porch, built with stones of the same kind and size as the rest, and quite Romanesque in character.

Such are my main reasons for arriving at the conclusion stated in my lecture, that probably the whole is a work of the eleventh or twelfth century, and that "my own impression is that no part of it can be ascribed to an earlier period." Such is still my impression. I do not pretend to dogmatise or to speak authoritatively. Mr. Fergusson asks my reasons: these are some of them. I could greatly extend my remarks. I am acquainted with a few buildings in Italy, Germany, and France, which antiquaries, and amongst them Kugler, whom I hold to be a cautious and trustworthy judge, ascribe to the eighth or ninth century: they bear little resemblance to this particular building, and are a distinct class of themselves.

And now I think, as I have given Mr. Fergusson reasons for my opinion, he in turn will not refuse to explain on what grounds he ventures to ascribe this building to the eighth or ninth century. Indeed, the *onus probandi* lies with him properly, and not with me, since he has publicly printed and stated it as an authority, whilst I only give my opinion as a professional man to his *confrères*, to be taken for so much as it may prove worth. J. B. WARING.

GEOMETRICAL STONE STAIRCASES.

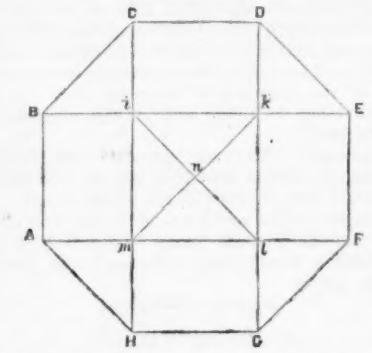
SIR,—At the trial of the action brought against the Polytechnic Institution, in consequence of the fall of the staircase there (a case, by the way, into which a degree of prejudice was imported that was quite to be lamented), it was stated by some of the witnesses for the defence, that every step of a geometrical stone staircase should be capable of supporting itself as well as the weight it should fairly be expected to carry, independently of those below it. Some severe remarks were made on this statement, and, like a great many others on the same occasion, very unjustly, as the following circumstances will prove.

Being called on to survey and report on some settlements discovered in a church erected about seventy years ago, I found it had been built, as was frequently the case at that period, upon sleepers and planking. These were rotting by degrees, and of course the walls were settling, and full of cracks. At one angle of the church was a geometrical stone staircase, partly supported by an outer, and partly by an internal, wall. The former, being heavier, had settled more than the latter, and the steps of the lower portion of the staircase had dropped away from the upper, leaving ten fliers unsupported by anything but the pinning-in to the wall. In fact, I could put the end of my stick between the tenth and eleventh steps. I was informed the stairs had been in this state for many months, large congregations descending together by them three times every Sunday. Of course I advised proper precautions to be taken; and venture to trouble you with these facts, that justice may be afforded to the gentlemen who gave evidence on the previous occasion. ARTHUR ASHPITEL.

TO ASCERTAIN THE AREA OF AN OCTAGON.

BEING awake early one summer's morning, I amused myself by studying the pattern of the bedroom carpet (an imitation of inlaid oak), and made out from it the following rule for finding the area of an octagon, viz.,—

MULTIPLY THE DIAMETER BY TWICE ONE SIDE FOR THE AREA.



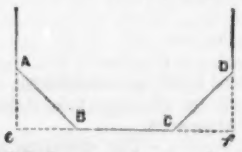
Let A, B, C, &c. be an octagon: it is evident (geometrically) that the two parallelograms formed by the diameter and the sides, C D, H G, and A B, E F, cover the area of the octagon, with the exception of the four triangles, B *i* C, D *k* F, F *l* G, and H *m* A, but the square *i*, *k*, *l*, *m*, forms a portion of each parallelogram, and cannot, for area, be used by both.

Divide this square by diagonals into four equal right-angled isosceles triangles, *i n k*, *k n l*, *l n m*, and *m n i*: now of the triangle *m n i*, the base *m i* is equal to A B, and A B is equal to B C, the base of the triangle B *i* C, and (without going into the well-known detail of proof) the triangles *m n i*, and B *i* C, being both right-angled isosceles triangles, having equal bases, are equal to each other, and so on with the remaining three pairs of triangles; therefore the square *i k l m* is equal to the sum of the areas of the four triangles B *i* C, &c.; and, by being used as a part of each of the two parallelograms, C D, H G, and A B, E F, proves the rule.

I have nowhere seen the above rule published. I myself discovered it in the way I mention; and, if not hitherto adopted, I think it is worth attention.

As I am writing, I add an approximate rule I have used to find the side of an octagon from the diameter, or the diameter from the side; viz.,—

THE DIAMETER OF AN OCTAGON IS TO THE SIDE AS 17 TO 7, NEARLY.



Let A B C D be an octagon whose side is 7: make the right-angled isosceles triangle A *e* B on the side A B: now, in a right-angled triangle, the square of the hypothenuse is equal to the sum of the squares of the other two sides: the square of the hypothenuse A B is 49; consequently the equal sides A *e*, *e* B, are each (nearly) 5, the sum of the squares of these sides being 50; so that the diameter of the octagon is *e* B + B C (= A B) + *c f*, equal to 17. More accurately, the diameter is 17·071, and the side 7·071, the square of which is 49·998981; but the approximate rule avoids the incumbrance of many figures; and, giving the fractions of inches to the sides, is so close as to be available for all practical purposes in building work. HENRY DUESBURY.

* See *Builder*, vol. xxii. p. 856.

INSTITUTION OF CIVIL ENGINEERS.

ON March 12,—Mr. Bidder, president, in the chair,—a statement was read, by the permission of the council, in reference to the remarks which had been made at the last meeting, upon the paper "On Floating Beacons." It was stated that seventeen keel buoys had been already constructed, and that there were two on the Arklow Bank and one on the Codling Bank, coast of Wicklow, one on the Butter Pladdy Reef, coast of Down, and one on the north-west Godwin, in the Gull Stream. The effect which had been attributed to the keel, or prolonged sides, was not only consistent with theory, but had been corroborated in practice, and its action was similar to bilge pieces, as the function of both was to press against a mass of water which by its inertia steadied the floating body. The paper read was "On the North Sea, or German Ocean; with Remarks on some of its Estuaries, Rivers, and Harbours," by Mr. John Murray.

THE STREET RAILWAY TO BAYSWATER.

ON the 23rd instant, Mr. Train opened his first length of street railway, running from the Marble Arch, Hyde-park, to Bayswater; and afterwards received a large number of his friends at luncheon in St. James's Hall, who heartily wished him success in his undertaking; in which good wish we join. It seems difficult to find any other than personal reasons for opposition to what must prove a great boon to large masses of the population. The narrow flange on each flat plate of iron forming the railway is so slightly elevated, supposing the roadway maintained at its present level, that no inconvenience is felt by other vehicles in crossing it. The cars used are much longer and wider than common road omnibuses. The back and front are exactly alike; for the carriages do not turn round; but, when they have arrived at the end of the journey, the horses are removed, with pole and harness attached, from one end to the other; the back part of the pole being inserted into a recess in which it is pinned. A low platform at each end, covered with the roof of the omnibus, serves for the entrance and departure of the passengers, and the driver stands in front of it. The wheels are not more than 2 feet in diameter, and are solid, like those of railway carriages. They run under the seats, so that the bottom of the omnibus is near the ground, and the entrance or exit is exceedingly easy. The width of these carriages admits persons to walk from one end to the other without incommoding the passengers who are sitting. There is room for ten passengers to sit on each side, and there is standing room at each end on the landing platform for six more, besides the driver and conductor. In narrow crowded streets they could not wisely be introduced, but there are many lines of road on which they may be used with advantage.

THE "BUILDER'S" LAW NOTES.

Joint-Stock Company—Transfer of Shares.—A shareholder in a joint-stock company transferred his shares, for an alleged consideration of 97*l.* It was proved, however, that the transferrer gave the shares to the transferee, and that in fact no consideration passed. It was held that the transfer was not *bonâ fide*, and the name of the transferrer was placed on the list of contributories when the company was being wound up.—*Esgar Mining Company, re Alexander.*

What is False Representation?—A clerk of a joint-stock bank stated to a person that the bank was in a flourishing condition, though it really at the time was insolvent. This statement caused the person to take shares. When the bank came to be wound up, this shareholder sought to be exempt from contributing; but it was held that such a representation could not be considered as a representation by the company, and accordingly the shareholder was held bound.—*Re Frowd.*

Liability of Railway Companies as Carriers.—Goods were sent on a railway to be carried to a certain station; but, by undue delay, they were not delivered for some weeks after the proper time. An action was brought to recover the loss sustained by reason of the goods not being ready for sale during the proper season. It was held that the proper measure of damages was not the loss of profits which the plaintiff might have realised if the goods had been delivered in the proper time, but only the actual value of the goods at the time of delivery.—*Wilson* v. *Lancashire and Yorkshire Railway Company.*

Imprisonment of Railway Passenger.—A passenger was taken into custody, by order of the superintendent of the line, for not having produced a proper ticket, although he offered a reasonable explanation of the mistake, and gave his address. In an action for false imprisonment against the company, the defendants contended that the superintendent was not their authorized officer for such a purpose. It was held, however, that the company was liable for his act.—*Goff* v. *Great Northern Railway Company.*

"WAT TYLER."

SIR,—Since the notice taken by the Institute of the letter bearing the above signature, I have (like many others, no doubt) read it carefully. I cannot regret the publication of the letter, because its suppression would have been dangerous; but I feel astonished that so sweeping a reformer should have been induced, by what must be considered false delicacy, to deprive us of the pleasure of becoming acquainted with his name. For what we know, the anonymous "Wat Tyler" of March may be seconded by some equally untangible "Jack Straw" of April; and I therefore venture to ask, whether it would not be better that the architectural profession, standing as they do in fair, open view, should have their assailants equally visible.

The random charges made by the writer in question, it must be borne in mind, are by no means new. I believe, also, that they are very easily disproved; but that it is really not worth while for any one to assume the task of disproving them. I fancy the real cause of Mr. "Wat Tyler's" indignation must be that "Mr. So-and-so," whom the alleged fraudulent architects prefer, contrives to outstrip him in the race of competition, by the simple expedient of contenting himself with a reasonable price. There are tricks in all trades (except, of course, that to which Mr. Tyler belongs), but I will venture to assert that, as the world goes, there is no craft in England which better deserves the confidence of the public, whether for hard work for little pay, or for honesty in the midst of temptation (from "Wat Tylers" of various kinds), than that which is represented by the Royal Institute of British Architects. ROBERT KERR.

ST. THOMAS'S HOSPITAL AND THE CHARING CROSS RAILWAY.

SIR,—In a note in your last paper, on the subject of the decision of Vice-Chancellor Wood, in the case of St. Thomas's Hospital and the Charing-cross Railway, by which the Railway is compelled to take the whole Hospital, you add,—"An impression prevails that the trustees have not behaved well in this matter." If by "trustees" is meant the governors of this great institution, nothing can be more unjust than this impression. From the moment this Charing-cross scheme was made public, the authorities of St. Thomas's gave notice that this railway would destroy the hospital. They opposed it in both Houses of Parliament, and called every medical officer to prove that this must be the inevitable result of this ill-considered project. They pointed out a cheaper and better line; but their protests were disregarded and laughed at. No change or improvement was attempted, and the plainest directions of the law were disregarded. The consequences have followed that were pointed out from the first, and St. Thomas's Hospital must be first bought and paid for, and then removed.

The governors of the hospital have been unanimous on this subject from the first; and certainly there is no ground for any accusation of inconsistency or unfairness. As to the railway, its authorities state publicly that they are very happy in the opportunity of obtaining so valuable a site. They have passed a bill in the House of Lords for making another bridge across the Thames, and another terminus in Cannon-street, and this within the last fortnight; though where the money for these works can be found surpasses even *railway* comprehension.

MEDICUS.

PATENTS CONNECTED WITH BUILDING.*

PLATING AND PLASTERING HOUSES AND PUBLIC BUILDINGS WITH NATURAL STONES.—*A. Juttau*, Orleans. Dated 22nd June, 1860.—The patentee claims covering, renewing, or altering the appearance or style of architecture of the exterior of houses or edifices of every description with plates, slabs, or veneers, of natural stone, dovetailing the one into the other, and fitting into the body of the building, whether by the system of tongue groove and tenon described, or by any other similar mode of attachment.

CHIMNEY TOPS, OR COWLS.—*J. M. Fisher*, Taunton. Dated 9th May, 1860.—This invention consists in constructing chimney tops of a series of conical shaped funnels, placed one over the other, and held at a convenient distance apart by side bars or frames.

WATER-CLOSETS.—*H. Jones*, Annery, near Bideford. Dated 23rd June, 1860.—The basin, which it is preferred should be of a conical form, is made of glazed pottery or earthenware, with a flange around the upper edge thereof. The basin is set in a vessel, by preference of a cylindrical form, which is of glazed pottery, and made suitable at its upper end to receive the flange of the basin, and to admit of its being cemented or luted air-tight when they come together. The bottom of this outer vessel is closed, there being a side outlet suitable for connecting with a glazed earthenware pipe. Below the end of the basin there is a pan of glazed pottery or earthenware, made with necks or axes, which are received into bearings formed within the outer vessel near the bottom. The pan is so hung on its axis that, when full of water, it will stand horizontal, and the water therein will rise above the lower end of the basin. The front part of the pan is made with a spout, so that, when tilted the water and soil will be completely emptied therefrom. At the back of the pan a suitable connection is made to a handle on the seat of the closet, such connection, where it passes out through the seat, being made air-tight by vulcanized India-rubber or otherwise.

WATER-CLOSETS, AND SEWERAGE AND SANITARY APPARATUS OR APPLIANCES.—*W. Macfarlane*, Glasgow. Dated 22nd June, 1860.—This invention relates to the arrangement, construction, and working of what may be termed dry water-closets, or receptacles for fœcal and other refuse matters of a generally similar nature. The apparatus consists of a cast-iron trough, fitted with the discharge valve at the end or side, as may be most convenient, the bottom line of which is in a line with the bottom of the trough, or slightly dipping or inclined, one surface of the valve being of a hard or inelastic substance, whilst the corresponding surface is of a soft or elastic substance. The valve is fitted with a hinge and lock. The actuating parts of the valve are placed on the outside of the closet or receiver, and also on the outside of the house or building.

* From the *Engineer's* lists.

Books Received.

The St. James's Magazine. Saunders & Otley.

THE first number of Mrs. S. C. Hall's new magazine is a good one. Mr. Robert Bell has a semi-archæological paper on St. James's Palace: Mrs. Hall begins well a tale "Can Wrong be Right?" Dr. Doran gossips very pleasantly on "The Hills of London:" Captain Drayson gives some useful information "Among the Stars;" and Mrs. Merrifield introduces the need of sanitary knowledge to women. This is a topic on which it will be well to dwell. As to poetical contributions, there are some good lines in "Helias," by Owen Meredith: Mr. Thomas Hood's contribution the "Song of the Lark in the City," is very charming: nor can we omit mention of some verses for music signed with three stars. Mr. J. O. Halliwell, Mr. R. Hunt, Miss Muloch, and others aid in making this a famous shilling's worth.

Miscellanea.

THE VICTORIA CROSS GALLERY.—For the 3rd season, Mr. L. W. Desanges has opened, in the Egyptian Hall, Piccadilly, his exhibition of pictures illustrating actions which have won the Victoria Cross. Mr. Desanges has added eight interesting paintings, six relating to the recent struggle in India, and two to the Crimean war. The collection now consists of 47 pictures,—a remarkable work, calling for a visit. We have before now suggested that the collection should not be distributed: its value and interest will increase with years. Either a general subscription or a national grant should be obtained to render it public property.

ECCLESIOLOGICAL SOCIETY.—At the last committee meeting, held on the 19th inst., amongst other matters, Mr. Bodley urged the importance of some steps being taken by English ecclesiologists to protest against the wholesale destruction of the original architecture, and especially the sculpture, of the finest French churches, under pretence of restoration. After much discussion, it was agreed that the officers should be appointed a sub-committee, to draw up a memorial to the Royal Institute of British Architects, requesting them to make a formal appeal to their French brethren on the subject. The committee examined Mr. Bodley's designs for the new church of All Saints, Cambridge, to be built opposite the gate of Jesus College. Mr. Burges stated, in conversation with respect to the French mania for destructive restoration, that Avignon was about to be taken in hand by M. Viollet Le Duc. The committee examined some specimens of a method of needlework, independently invented by Mr. A. Bell, which proved to be of the same kind exactly as that used at Cologne, for the hangings behind the stalls, noticed in a recent number of the *Ecclesiologist*. Mr. Bell announced that he had taken the advice of the committee, and meant to exhibit the specimens at the Architectural Exhibition, in friendly rivalry with the Cologne specimens brought over by Mr. Beresford Hope, and sent by him for exhibition in the Conduit-street gallery.

MR. RUSKIN'S TURNER DRAWINGS.—Mr. Ruskin has presented the greater part of his collection of drawings by the late J. M. W. Turner, R.A. as a free gift to the University of Oxford, to be placed in the custody of the Curators of the University Galleries.

BARRACK DRAINAGE AT CANTERBURY.—Arrangements are, it is said, in progress for draining the barracks here with patent bituminized paper pipes, mentioned by us some time ago, and such as have been in use in Paris during the last three years: they are about one-fifth the weight of iron pipes and half the price, it is stated.

PAINT MADE WITHOUT OIL.—Dissolve 8 lbs. of glue in boiling water, with which slack a bushel of quicklime till the whole is of the consistence of paint. Apply *three* coats of this mixture on the stone with a painter's brush, each coat being quite dry before it is succeeded by another. Over the third coat apply greystone dust with a dredger. This forms a non-absorbent surface. It may be rendered green by mixing common blue and yellow ochre, and applying them hot.—J. B.

HURSTMONCEUX.—During the last few days a portion of the ancient ruins of Hurstmonceux Castle, Sussex, have fallen down, more especially the vaulted kitchen or mess-room, the cover of which was of a brick arch. This is entirely destroyed; also the chimney of the same has partly fallen, and more is likely to follow. The exterior remains in the original condition. On the afternoon before the brick arch fell, several of the children of the Rev. Mr. Chataway were at play in the kitchen. A great many tons of bricks have fallen.

RAILWAY RETURNS.—The traffic returns of railways in the United Kingdom, for the week ending March 9, amounted to 480,450*l.*, and for the corresponding week of last year to 458,610*l.*, showing an increase of 21,840*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 205,482*l.*, and for the corresponding week in 1860 to 197,258*l.*, showing an increase of 8,224*l.* The receipts on the other lines of the United Kingdom amounted to 274,968*l.*, and for the corresponding week of last year to 261,352*l.*, showing an increase of 13,616*l.*

THE REPORT OF THE ROYAL COMMISSION ON DOCKYARDS.—This report has just been published. Its principal suggestions are for the naval minister to be entirely responsible for the control and management of the dockyards; for the concentration of all the departments of the admiralty connected with the dockyard under one roof; for the consultation of scientific and practical men; and for an annual programme of ship-building works to be submitted to Parliament with estimated cost of each ship, under head of "materials and labour."

FALL OF A SUSPENSION BRIDGE IN FRANCE. An account of the complete destruction of the suspension bridge across the Garonne, at Verdun, is given by the *Courrier de Tarn et Garonne*. During a violent gale, a heavy squall lifted the platform bodily from its place, and the suspending chains snapping, it fell into the river, causing a great obstruction. The shock on the columns at either end of the bridge, to which the chains were attached, was so great that they both fell. The French seem to have been rather unfortunate with their suspension bridges.

METROPOLITAN DRAINAGE, &C.—In the Commons last week, Mr. Tite moved an address for returns, from the Metropolitan Board of Works, of the date of the Act of Parliament authorising the execution by the Metropolitan Board of the main drainage; the total amount authorised to be raised, the amount borrowed, and rate of interest paid for the same; total length of sewers intended; length in yards contracted for, and total amount of contracts; the length in yards executed, and total amount paid on account; the date of Act of Parliament authorising the carrying out the Southwark and Westminster New-street, &c. The motion was agreed to.

PROFESSOR WILLIS ON THE FALL OF CHICHESTER SPIRE.—A lecture was delivered last week at the Assembly Rooms, Chichester, by Professor Willis. The lecture was given in connection with the Chichester Literary Society and Mechanics' Institution. The chair was taken by the Lord Bishop. As Mr. Willis will probably repeat the substance of it at the Institute of Architects on Monday next, we may delay our report till then. The lecturer entirely exonerated from blame all connected with the recent works there. Salisbury Cathedral, he was sorry to say, threatened exceedingly; and he was of opinion, from what he knew of it, that the spire might fall at any moment. He knew it was a serious opinion to propound, but it was what he believed.

THE SOCIETY OF BRITISH ARTISTS.—The exhibition comprises 870 paintings and drawings, and seven pieces of sculpture, and is of the usual character. On the private-view day, Saturday, the 23rd, and the first day it was opened to the public, Tuesday, the 26th, sales were effected to the extent of about 1,500*l.* We must postpone further notice.

THE NATIONAL PORTRAIT GALLERY, 29, Great George-street, Westminster, will be freely open to the public on Easter Monday, Tuesday, and Wednesday, from 10 to 5 o'clock. At other times admission is restricted to Wednesdays and Saturdays, from 12 to 5 o'clock. Tickets are no longer required.

READING ABBEY GATEWAY.—We are glad to learn from the *Reading Mercury* that, acting on the suggestion in the *Builder* that a great deal might be done by means of local exhibitions, concerts, bazaars, &c., towards the restoration of the gateway, the Reading Amateur Musical Society have offered the proceeds of their Easter Concert in aid of the restoration fund, and the Mayor and Corporation have consented to patronize their efforts.

THE METROPOLITAN HOTEL BILL.—On the motion by the Earl of Shelburne in the House of Lords that this bill be read a second time, Lord Redesdale moved, as an amendment, that the bill be read a second time that day six months; and, after some discussion, the amendment was carried by a majority of 33 to 25, so that the bill was lost. Lord Redesdale's main objection to it as a private bill, was, that the promoters required power to remove house property by compulsion, and had declined to withdraw this clause from the bill.

THE DRINKING FOUNTAIN MOVEMENT.—The public fountain committee at Portobello, near Edinburgh, have accepted the tender of Mr. A. Sanderson, builder, Portobello, for the erection of the fountain on the Marine Parade.——Mr. Sewjee, the wealthy commissariat contractor, has given orders, according to the *Bombay Gazette*, to Messrs. Walker, ironmongers, to procure for him three ornamental drinking fountains from England. These fountains are intended for public use, and will be located in the most prominent parts of the island.

THE ENGLISH IRON TRADE WITH FRANCE.—The commercial treaty concluded between Great Britain and France is beginning to produce some effect. An English house has obtained a contract for supplying the French Government with 6,000 tons of iron, to be delivered within a limited period at the port of L'Orient, in bars, at 123 francs the ton. A French ironmaster presented a tender for the proposed supply at 135 francs the ton. The price paid for a similar article previous to the treaty of commerce was 200 francs.

EXTRAORDINARY FLOW OF EARTH-OIL.—A gentleman who has just returned from the oil region, says the American *Gas-light Journal*, informs us that the men engaged in boring one of the Economite wells, at Tideout, have struck, at the depth of 98 feet, a vein of oil and gas, so powerful that it was thrown up some 70 feet above the surface! Such an extraordinary flow of oil was never before seen even in the Tideout region, so fruitful of surprises of this character. Some 232 barrels (about a third of the flow) were secured, and the flow still continued. Extraordinary as all this about lands flowing with oil is, one of the most singular facts connected with it is, that it is only now it has all come out.

WELDING IRON IN VACUO.—In a communication to the Academy of Sciences, at Paris, M. Faye, according to *Galignani*, gave the following account of some experiments, in which M. Ruhmkorff took part. An iron wire was cut in two, and the ends brought into contact without any mechanical pressure: this done, by means of an electrical current the wires were heated to a dark red *in vacuo*, and they were thus instantaneously welded together. The wires were at an angle of 150 degrees; and yet, with that inclination, they supported a weight of upwards of three kilogrammes, before breaking at the point where the welding had been effected. The same experiment, made in the open air, by way of a counterproof, led to no result. Encouraged by this success, M. Faye heated a thick iron cylinder *in vacuo*: it had been sawed in two, and the parts then joined together by two screws. The latter having inadvertently been made of brass, they began to melt during the heating process; but although but a very small portion of the metal had actually become fluid, it penetrated by capillary attraction, aided by the vacuum, into the smallest fissures, soldering the two pieces with extraordinary nicety.

ARTISTS' BENEVOLENT INSTITUTION.—The forty-sixth anniversary dinner of this excellent Institution, established in 1814, for the relief of decayed artists, and affording assistance to their widows and orphans, was celebrated at the Freemasons' Tavern, on Saturday evening, 23rd inst., under the presidency of the Right Hon. F. W. Cowper, M.P., supported by Sir Charles Eastlake, president of the Royal Academy, and others. The subscriptions of the evening amounted to about 500*l.*; and, in announcing a donation of 10*l.* 10*s.* from Mr. George Jones, R.A. (who had previously presented thirty-eight donations, amounting in the aggregate to 294*l.* 9*s.*), Mr. Phillips, the honorary secretary, stated that he scarcely knew whether he ought to make the fact public, but it was of such a gratifying nature that he could not refrain from doing so. Mr. Jones had announced his intention of giving to the society during his lifetime an amount of money, the interest of which would secure to the Institution the 10*l.* 10*s.* per annum he now gave them in perpetuity.

TENDERS

For erecting warehouse, No. 3, Little Knight Rider-street, for Mr. G. M. Boyes; Mr. W. Hudson, architect. Quantities supplied:—

Abbott & Hopwood	£1,646 16 0
Foster	1,189 0 0
Lawrence	1,131 0 0
Pritchard	1,086 0 0
Brown & Robinson	1,066 0 0
Child, Son, & Martin (accepted)	1,040 0 0

For the additions to St. Marie's Convent, and for Girls' School, Richmond Hill, Leeds; Mr. M. E. Hadfield, Sheffield, architect. Quantities not supplied.

"N.B. In the amounts given below, the old materials have been deducted; and, where the tenders were not for the whole work, the lowest separate tenders have been added to them respectively:"—

Hoggard	£2,489 17 0
Smith	2,479 10 0
Whitehead	2,462 16 0
Richardson & Moses	2,458 2 0
Nicholson & Son (accepted)	2,452 17 0

For ten cottages at Plymouth; Mr. Moffatt C. W. Horne, architect:—

Stevens	£3,938 0 0
Lavers	3,590 13 4
Matcham	3,105 0 0
Clark	3,056 0 0
Elliott & Mitchell	2,925 0 0

For building new workshops at Brighton, for the Brighton Railway Company; Mr. Hood, engineer. Quantities supplied by Mr. C. H. Driver:—

Reynolds	£8,265 0 0
Sawyer	7,915 0 0
Stap	7,688 0 0
Patching	7,610 0 0
Bushby	7,391 0 0
Cheeseman & Co.	7,269 0 0
Fabian	6,785 0 0
Rowe	6,359 0 0
Chinnock, Brothers	6,211 0 0

For the building of Ladbroke Chapel and Lecture-room, &c., Notting-hill; Mr. Charles G. Searle, architect:—

Moore	£5,021 0 0
Higgs	5,000 0 0
Myers	4,893 0 0
Turner & Sons	4,869 0 0
Ennor	4,774 0 0
Howard	4,493 0 0
Macey	4,475 0 0
Hill	4,470 0 0
Howlett & Brown	4,411 0 0
Keyes & Head	4,350 0 0
Robinson	4,323 0 0

For the erection of a house and offices, lodge and stable, between Watford and St. Alban's, for Mr. R. Harrison; Mr. Wm. Coats, architect. Quantities by Mr. R. L. Curtis:—

Chamberlin	£2,876 0 0
Raby	2,693 0 0
Stevenson	2,500 0 0
Biggs	2,244 13 8
Arnold	2,085 0 0

For alterations to 102, High-street; Mr. Horace Jones, architect:—

Clemence	£519 0 0
Conder	405 0 0
Cannon	395 0 0
Hawke	349 0 0
Thomas (accepted)	332 17 0

For proposed works, Newport-market, Soho; Mr. W. Sim, Dane's-inn, Strand, architect:—

	Specification No. 1.	No. 2.
Mathews	£183 0 0	£58 10 0
Fish	568 0 0	50 0 0

For houses to be built at Notting-hill, for Mr. Robert Offord; Mr. Habershon, architect:—

	4 Houses.	7 Houses.	11 Houses.
Walker	£3,712 0	£6,546 0	£10,158 0
George	3,434 0	6,000 0	9,444 0
Moore	3,324 0	5,965 0	9,349 0
Cols & Co.	3,358 0	5,885 0	9,150 0
Downs	3,226 0	5,828 0	8,924 0
Colman	3,190 0	5,550 0	8,670 0
Rudkin	3,589 0	5,540 0	8,622 0
Fawssett	3,220 0	5,460 0	8,470 0
Mann	2,981 0	5,277 0	8,288 0
Stevens	3,000 0	5,232 0	8,250 0
James & Ashton	2,050 0	5,150 0	7,955 0
Pyle	2,296 11	3,900 0	6,300 12